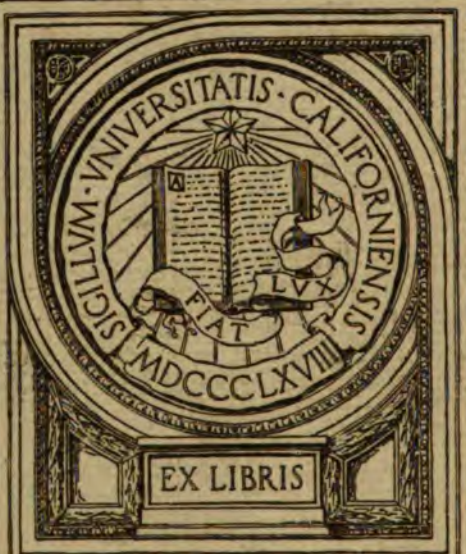
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The Total Disability Provision

IN

American Life Insurance Contracts

THESIS

PRESENTED TO THE FACULTY OF THE GRADUATE SCHOOL OF THE UNIVERSITY OF PENNSYLVANIA IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

BY

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PART I

DISABILITY INSURANCE—HISTORICAL AND STATISTICAL

CHAPTER I

Historical Development of Disability Insurance

The practice of granting insurance against total and permanent disability represents one of the latest innovations of American life insurance companies in the liberalizing of their contracts. On October 16, 1896, the Fidelity Mutual Life Insurance Company of Philadelphia issued the first policy of this kind on the life of its president. The movement toward the incorporation of the disability clause in life insurance contracts has spread with such rapidity that by January 1, 1912, at least 135 companies out of the 239 doing business in the United States granted a disability clause in some form.

Early Experiments with Disability Insurance

It is of interest, in view of the importance which this feature has recently assumed, briefly to trace its development. The first experiments with insurance against total and permanent disability[1] were made by mutual aid societies in connection with the insurance of miners in Germany and Austria in the eighteenth century. The need of such benefits was naturally manifested first among hazardous occupations such as mining. As Germany developed industrially during the nineteenth century the movement spread to other classes of workers and many funds were established, particularly among railway corporations. Out of these isolated attempts on the part of private associations to solve the problem grew the German invalidity insurance law of 1889. This law was incorporated in 1911 with the national sickness and accident insurance laws of that country into a complete scheme of insurance against

[1] These historical notes have been taken largely from an article by Mr. Franklin B Mead in the *Transactions of the Actuarial Society of America*, 11:304.

the most important industrial hazards. Governmental schemes of insurance against invalidity are now found in Austria, Belgium, France, Germany, Great Britain, Italy, Russia and Sweden.

In Great Britain sickness disability benefits, whether caused by disease or accident, have been granted by the Friendly Societies. The Friendly Societies have not attempted to distinguish permanent from partial disability. But the experience of these societies has been carefully analyzed by actuaries with reference to the duration of disability, so that there has resulted a considerable volume of data bearing upon what is known in the United States as total and permanent disability.

In America a number of trade unions have granted these benefits for many years, as have also the fraternal societies. In fact our best statistics regarding total and permanent disability are taken from the records of two of the larger fraternals.

Disability Insurance in Life Insurance Contracts

Disability insurance, incorporated in a life insurance contract, is a later development. The credit for this new departure likewise belongs to Germany, where such a contract was first issued in 1876. Thereafter it did not develop among the German companies with the rapidity shown at a later date in America. In 1900, out of 45 companies in the Empire, 17 were issuing it. Since 1900, however, most of the important companies in Germany have adopted the disability provision in one or both of two forms. First, in connection with regular life contracts, it is issued with limited payment life, endowment or straight term policies, the benefits granted being either waiver of premium or the maturity of the policy, to be paid in the form of an annuity of ten to twenty payments. The second form, the purchase of a life annuity, is granted as an independent contract and pays the insured an annuity from the time of disability until death. This latter contract may be paid for by a single premium or by periodic payments, each payment creating the right, after three years, to an annuity based on the age at which the payment is made. Under both forms the disability insurance ceases at age sixty-five.

The Russian companies issue an unusual type of policy including this clause. They will issue participating policies and then grant the insured, upon his relinquishing the right of participation,

the privilege of receiving invalidity insurance in lieu thereof. In case of disability, premiums cease and the policy matures, the insured receiving immediately a cash sum of fifty to seventy-five per cent of the sum insured, the remainder, if any, to be paid at death or at the end of the endowment period. The participating policy is loaded to the extent of about ten per cent of the non-participating premium, thus showing about what the benefit costs.

Development of Clauses Among American Companies

As already explained, the disability clause has been a part of the life contracts of American companies only since 1896, and at the time of writing there are, including two large Canadian companies which write insurance in the United States, 135 companies which grant the clause. The importance which this clause has assumed in the brief space of 16½ years can better be shown by comparing the relative amount of insurance represented by the companies granting it and by those which do not grant it. The Insurance Year Book shows that on January 1, 1912, the 239 companies of the United States had insurance in force (not including industrial business) to the amount of approximately $14,500,000,000. Add to this the insurance of the two Canadian companies included in this study, and it gives a total of over $14,800,000,000. Of this total insurance in force, the 135 companies granting the disability clause with their contracts had $11,700,000,000, or approximately 79 per cent of all insurance in force by American companies. It is apparent that these figures are slightly unfair in including only two Canadian companies in the list; but this inquiry has not extended generally to Canadian companies granting the clause. By eliminating the two Canadian companies from the comparison, however, over 78 per cent remains. The following table shows the exact figures:

A. Total for 239 companies of United States (January 1, 1912,) (ordinary business)..	$14,577,131,497
B. Including 2 Canadian companies doing business in United States.....	229,026,360
C. Grand Total	$14,806,157,857
D. Total of 135 companies granting disability clause (approximately).....	11,704,645,000

Proportion of "D" to "C"—79 per cent.

It is not desired to leave the impression that this eleven and three quarters billions of insurance represents the amount covered by the disability provision. It represents all the insurance in force by these one hundred and thirty-five companies and many of them refuse to apply the disability clause to old policies. Some companies have announced their intention of including old policies and some do so when requested but are not advertising the fact. It would be interesting to know just how much insurance is now covered by the new clause but it would be impossible to determine it at present without a personal canvass of all the companies concerned.

CHAPTER II

Reasons for and Objections to the Disability Clause

Motive of the Agent and the Company—Competition

The extraordinary growth in popular favor which the disability clause has shown justifies the belief that there are very good reasons for its existence. The reason for its adoption so generally may lie with the company, the agent or the policyholder. Of course the disability clause must ultimately be tested by its utility in serving the public interest as an insurance measure even though that may not be the immediate reason for its popularity. If a history of life insurance shall ever be written, certainly no more interesting phase of it will be found than the evolution of the life contract and the gradual liberalizing of its provisions. To take only a single instance, the granting of cash loans was bitterly opposed by a number of companies until they were forced either by statute law or by competition to grant such loans; then they reversed their position and, making a virtue of necessity, exploited their loan privileges to the limit of their advertising ability. This competitive struggle among life companies is always active and the wide-awake manager is always looking for some feature that will make an appeal to popular interest. Let us then look at the disability feature from the standpoint of the agent. The agent sells insurance by convincing his prospective customer that his company grants a better bargain than any other company on the market. To do this he *must have something to talk about* and any new feature which a number of keen competitors do not grant will tend to make his contract a good seller. There is no doubt that pressure from agents for a "selling feature" has induced many companies in the United States to make the disability clause a part of their contracts. This attitude on the part of the agent quickly reacts on the company. A great number of small companies have sprung up in recent years throughout the south and west and have written a considerable amount of their insurance in their immediate localities. Then they have extended their activities beyond the sphere of their local surroundings and have found that they must compete for

business. The appeal to patronize home companies which is of great value locally is of no avail when a company enters a new locality as a stranger. This is its opportunity to exploit a selling feature. But before long the larger companies, which solicit risks all over the United States, realize that the selling feature counts and they meet the competition of the smaller companies by introducing the new clause. The following figures bear out this statement. Of 135 companies issuing the disability clause 94 are small companies, each having on January 1, 1912, less than $10,000,000 of risks on its books; twelve are large companies, each having over $100,000,000 of insurance in force. These twelve began the granting of the disability clause as follows: one each in 1896, 1904, 1907, 1910 and 1911 respectively; three in 1912; one in 1913; while for three the information is not at hand. There is no doubt that competition has been a powerful weapon in the "progressive enlightenment" of these companies. The companies in question do not suffer by this statement, for their clauses are among the best.

A classification of the companies according to the year of organization shows even more certainly that these clauses were issued largely as a competitive measure. Of the 135 companies in question, 70 per cent have been organized since 1905, 78.6 per cent since 1901 and 21.4 per cent of them were organized previous to 1901. Is not this adequate proof that it is *the newer and smaller companies* which have taken up the new "selling feature" and that they have done it in order to meet competition?

Attitude of Officials of Companies

If statistical data are not sufficiently convincing, the attitude on the part of officials who have been frank enough to express their opinions will help in reaching a conclusion. An address was delivered September 6, 1912, before the American Life Convention at Chicago by Bascom H. Robison, President of the Bankers Reserve Life of Omaha, on "The Frills and Furbelows of Recent Years." He said in part, "It will be my pleasure to invite your attention to a few reflections concerning some of the trimmings which have been sewed on to policy contracts for purposes of ornamentation. . . . The average man . . . has a hazy notion that such things (real frills and furbelows) have to do with the ornamentation of the feminine gown. Without going into the subject deeply I find

that such things are *not essential to the main purpose of a gown*, their chief office being that of ornamentation; and everybody knows that ornaments are superficial things tacked on to an object for the sole purpose of attracting favorable notice. . . . We cannot associate such things with the true character of a policy contract, which must have real substance and *must be based upon enduring principles of equity and good conscience. . . . My opinion is that policy contracts of this description* (*i. e.* designed to be attractive and to meet competition) *are not only in the nature of a false lure but in some instances they threaten the perpetuity of the company issuing them.*"[2] The first example of ornamentation he cites is the total disability provision. Here is a frank admission that the disability clause has, in the minds of many insurance officials, no other purpose than that of ornamentation of the contract. It furnishes the talking point which the agent must have. If such be the case universally then the quicker we are done with this clause the better. Undoubtedly the speaker in the case referred to knew only too well the real nature of some of the clauses which have been adopted. The writer of the following probably had one of these "ornamental" clauses in mind: "There is a possibility for the said rider *appearing to the prospective applicant for insurance as more valuable than its actual cash worth.*"[3] More direct in its implications is the next: "*As ordinarily framed*, we do not believe there is any particular objection to including the feature in all kinds of policies, *as in most instances its provisions are so specific as to make the liability of loss to the company very small.*"[3] For brutal frankness in analyzing the clause of his own company, the following from a secretary-actuary eclipses them all and shows what is in the minds of too many officials when drawing up one of these clauses. He writes, "Is of no value to the insured practically. Is only another outlet for deception on the part of the agent. Merely a cheap selling feature. . . . We only use the rider in cases of competition. Is not a leader at all. . . . A law prohibiting it until more was definitely known as to equitable rates, etc., would be a good thing."

Motive of the Policyholder—Protection

If this has been the attitude of many companies which issue the disability clause, the question may well be asked, is there no

[2] The italics were not in the original.
[3] Do.

further justification for its introduction into life contracts than its value as a talking point? If not, we can agree with this official that a law prohibiting it would be a good thing. But let the question be approached now from the point of view of the policyholder. Is there any great likelihood that the perpetuity of his policy will be endangered by the occurrence of the event against which the new clause insures? Is permanent and total disability a risk of any consequence to the average policyholder? It will be readily understood that the idea back of the clause is to prevent the lapsing of a policy and the loss of insurance by that *living death* which leaves a man in a helpless condition so far as concerns the continuation of his insurance, if he is dependent on the income from his daily work; and in a condition which from his own viewpoint justifies the *maturing* of his policy or at least justifies freeing him from the burden of further premium payments.

The Risk of Disability

Statistics again must be called upon to aid in the solution of this problem and fortunately we have them in the experience of fraternal societies in the United States which have insured against the risk of total and permanent disability. The scientific basis for determining rates for this risk will be discussed later but it is necessary here to call upon some of the tables that will then be considered. Three American actuaries, Messrs. Arthur Hunter, Sidney H. Pipe and Franklin B. Mead, have worked out, from the experience of the Foresters and the Maccabees, tables of disability and of mortality among disabled lives. It may be admitted that the risks of fraternal societies are not as good on the average as those of the old line companies, but absolute accuracy is not necessary and if these results will show the probability of becoming disabled to the average member of a fraternal society the purposes of the illustration will be served. These actuaries have each computed tables showing the yearly probability of becoming disabled. But it is desired here to know the total probability that a person will become so disabled and therefore be compelled to lapse his insurance. The following table has been arranged from Mr. Mead's probabilities based on the Maccabees by using the following method. The denominator of the probability fraction equals the number *living and not* disabled at the required age; the numerator equals the

number becoming disabled during the life expectancy of a person at the given age. These fractions are then reduced to decimal form. For example, at age 40, Mead's table, there are 77,864 persons living and active. The life expectancy of a person aged 40 is 28.18 years. The number of persons becoming disabled within 28 years from the beginning of age 40 according to Mr. Mead's data equals 10,969. To this was added eighteen-hundredths (.18) of the number disabled during the 68th year of age ($=.18\times2443=$ 440) giving the total number disabled during the life expectancy, or 10,969 plus 440 which equals 11,409. The entire probability of becoming totally and permanently disabled, it follows, to a person aged 40 is $\frac{11,409}{77,864}$ or .1466. The results from Mead's tables for every fifth year are as follows:

Probability of becoming disabled within life expectancy:

Age	
20	.0460
25	.0604
30	.0803
35	.1080
40	.1466
45	.1977
50	.2652
55	.3573
60	.4758
65	.6134
70	.7477

Since the computation of these tables entails considerable work, results have been worked out from Mead's tables only. But to show that the results are fair and that they do not favor the result expected, namely, a high rate of disability, more than do the tables of Hunter and Pipe, the following comparison may be of interest.

Out of the number living and active at age 20, being 92,637 for Mead's and Pipe's tables and 92,483 for Hunter's (the slight difference in the latter being because it was engrafted on the American Experience table at age 15 whereas the other two began at age 20) the three tables show the following total number disabled:

At age	Mead	Pipe	Hunter
30.....	208	337	471
35.....	414	630	717
40.....	600	955	999
45.....	895	1322	1360
50.....	1255	1897	1842
55.....	1798	2646	2528
60.....	3091	3861	3618

The comparison stops at 60 since Hunter's disability table does not extend beyond that age. The result shows that had either Hunter's or Pipe's tables been used a greater probability figure would have resulted.

If these figures are justified as an estimate of the chance that a man will become totally disabled within the average length of life, the question of insurance against the risk of total and permanent disability is a very important one and it behooves a man to consider whether he will add this protective feature and safeguard his insurance against possible lapse. True, the problem is somewhat minimized by the fact that only the man who is dependent on his current income to pay his insurance stands in the greatest danger from this risk. But this is equally true of all insurance and if only men took insurance whose families would be completely unprotected against death of the income-getter, there would be little insurance written.

This clause has become popular then because the company and the agent demand it for business reasons and because the policyholder needs it for economic reasons. The business argument has been largely at the base of its sudden popularity, but if the clause is to persist there must lie behind this the more fundamental interest of the policyholder. A close study of the clauses betrays the fact that some companies have left the policyholder out of consideration and have issued their disability contracts wholly with the idea of meeting competition.

Objections to the Disability Clause

The popularity of the clause has been attained despite a constant flood of criticism from the companies which are not issuing it. These objections should be noted briefly before taking up the more important study of the clauses themselves. Five important objections have been raised against this clause, namely: (1) that it is not life insurance and therefore should not be included in the life policy;

(2) that there is a very remote probability of a person becoming permanently or totally disabled and that only a short time elapses between disablement and death, and therefore there is little need for the clause; (3) that agents are given an opportunity to misrepresent the clause to the policyholder, thus opening the way to much dissatisfaction on the part of the policyholders in later years; (4) that it is difficult to define permanent and total disability to the satisfaction of both company and insured, making adjustment difficult and troublesome; and (5) that there is no scientific basis for determining the risk involved.

1. Not Life Insurance

As regards the first objection, namely, that the clause is not life insurance, the attitude of many companies is to the effect that if this type of risk is insured against, it should be covered by an accident or health company; that it is not the business of a life company, and that a combination of such unlike risks should be prohibited or discouraged. This objection disregards the fact that the occurrence of the contingency in question, namely permanent and total disability, puts the insured in just that position, where the permanence of his insurance is imperiled unless he is able to call upon some source of aid outside of his income, such as a savings deposit. It is quite true that this risk is covered *in part* by the clauses in many policies providing for automatic extended term insurance or automatic premium loans, and it is equally true that the companies are becoming increasingly liberal in the use made of these half-way measures. But if there is a real risk, the policyholder wants complete protection against it and such is not afforded by automatic premium loans. The objection here considered fails furthermore to note that accident and health companies do not give the insured the protection desired for they issue only one-year term policies and of course when they see the near approach of disability due to age or disease (and these constitute the great majority of cases) they will refuse to renew the policy and the insured is left without the very protection he wanted. Protection to the insured against this hazard must comprise *permanent* insurance against the possibility of permanent disability without the privilege of cancellation on the part of the company, and it is difficult to see where this will be obtained if not from the life companies.

2. Risk is Small and Interval Brief between Disability and Death

In answer to the second objection, namely, that the probability of becoming totally disabled is very remote and in case of its happening the time between disability and death is so short that an insurance against the risk is not needed, it is only necessary to offer the table on page 9 dealing with the probability of becoming disabled within one's life expectancy. This table shows that at age 35 one person in ten is liable to suffer total incapacity within his life expectancy, and that as the age increases, the probability of becoming disabled increases rapidly. At age 45, the probability has increased to one in five, at age 50 to one in four, at age 55 to one in three, at age 60 to one in two, and at age 70 to three in four. These figures make it appear that the risk of total disability is not an unimportant one. Moreover, the statement that only a short time intervenes between disability and death is untrue in many instances. We need only refer to the instances where persons lose both legs or arms, or become insane, or totally blind, or totally paralyzed, to appreciate the fact that one may live for many years after the occurrence of disability. While these cases are not important in the aggregate and do not mean a substantial addition, therefore, to the cost of the risk, the protection offered in such cases is of great importance to the individual who does not desire to face this uncertainty.

3. Misrepresentations by Agents

The third objection, namely, that the clause gives agents an opportunity to misrepresent facts and therefore may cause much dissatisfaction with the company in later years, is to some extent justified. Such dissatisfaction, however, will be great only in proportion as a company attempts to interpret its clause strictly. Insurance companies have passed through the same experience in the past with reference to many of the policy provisions which are now an inseparable part of the contract, and their failure to meet great dissatisfaction now, as compared with former years, is due largely to carefully drawn clauses and to a liberal interpretation on the part of the companies. If this liberality has become the established custom of the companies with regard to other features of their contracts, why fear that they will encounter more difficulties in connection with the disability clause? A study of the disability

clauses issued by American insurance companies shows that some have been drawn apparently for advertising purposes only, and are of very limited value indeed, furnishing ample justification for the fear that agents desiring to convince prospective clients may advertise such clauses as real disability protection, and that the policyholders will later, in time of need, find a discrepancy between promise and fulfilment. But it is apparent that this objection is directed, not against disability insurance as such, but merely at particular disability clauses, and the more quickly such criticism succeeds in eliminating these clauses from the field of competition, the better for all parties concerned.

4. Difficulty of Defining Disability

The fourth objection is in some respects similar to the one just discussed. The difficulty of determining what constitutes total and permanent disability is largely a question of wording and interpretation. In the first place, the clause should be so worded as to include within the scope of its benefits every legitimate case of permanent and total disability. A few companies unfortunately have attempted to restrict the definition of total disability in their clauses in such a manner as is bound to result in much quibbling if they insist on strict construction, and dissatisfaction will doubtless arise when policyholders have their attention called to the narrow limits of these definitions. Most of the clauses, however, are liberally worded, and in view of the past attitude of most American life insurance companies as to the liberal construction of contracts, there is little reason to anticipate difficulty with the clause. In the settlement of claims, many of the opponents of the clause fear that fraud on the part of the insured will assume large proportions. In the opinion of the actuaries of two of the larger companies issuing the clause, as expressed in letters to the writer, the attitude of the companies and their desire to be fair will go far toward minimizing the difficulties which may arise in the construction of the contract. Here undoubtedly lies the crux of the situation. There is little reason to see why fraud on the part of the insured will be a large element in this type of insurance, when companies today issue contracts against the risk of fire, or accidents to persons, or against burglary, cases where the element of fraud is sure to be greater than it will be with the disability clause. A company issuing this

clause should charge a premium high enough to justify liberality in the construction of its contract, and the contract should then be so construed.

The first two objections discussed bear primarily upon the statistical problem of the magnitude of the risk and its effect upon a life policy. There is little difficulty in showing that the risk is so considerable within the period of a person's expectancy of life that it may easily endanger the permanence of a man's life insurance protection. The last two objections cannot be advanced against disability insurance as such, but only in opposition to particular forms of clauses, or particular companies which seem to grant a disability benefit but qualify it with so many restrictions as to cause it to lose all semblance of its original purpose.

5. The Lack of Disability Statistics

The fifth objection to the adoption of the clause is more fundamental than any of the foregoing, and has reference to the absence of any scientific basis for the determination of the risk involved. The consideration of this objection requires a study of all the data dealing with the measurement of the risk in question and the application of those data to the clauses included in the present investigation. To this subject the next chapter is devoted.

CHAPTER III

Measurement of the Risk of Disability

Disability benefits have been granted by American life insurance companies only since 1896, and as noted before, 78 per cent of the clauses have been issued only since 1905. In this short time the companies have developed no experience of their own, and must look elsewhere for data to ascertain the risk involved. Permanent and total disability benefits as such have long been granted in Germany and Austria, and it was to this experience that American actuaries turned for data to measure the risk. The limits of this paper will permit no more than a cursory examination of the most important of these early data in their bearing upon the risk from the standpoint of American life insurance companies.

German Invalidity Tables

Permanent disability insurance began, as was stated, with the mutual aid societies organized by the miners of Austria and Germany and it was among these societies that the earliest statistical investigations were made. Among the tables published may be mentioned a table by Zeuner, showing the disability occurring among Saxon miners from 1860 to 1868 inclusive; the table by Caron including the experience of Prussian miners from 1870 to 1879; a table by Morgenbesser of the same data for the years 1868 to 1878; a table by Kaan dealing with Austrian miners from 1882 to 1890; and one by Küttner of Prussian coal miners from 1869 to 1883. Disability data for engineers and metal workers were published in a table by Zillmer in 1884. The investigation of experience among German railway employees was begun by Dr. Wiegand, who in 1868 completed the first inquiry into the rate of invalidity conducted on scientific principles. After the death of Dr. Wiegand these researches were continued until 1883 by Behm, after which they were carried still further by Zimmermann. Bentzien also published a table based on the years 1868 to 1889 dealing with invalidity among railway employees. A table for workmen in various trades was compiled by Behm in 1887, and this table is of special importance

TABLE 1

INVALIDITY PROBABILITY

Age	Railway employees								Miners					Engineers and Metal Workers	Workmen in Various Trades
	1868–1873	1868–1884	1868–1873	1868–1884	1868–1889	1877–1889	——	1868–1884	Prussian coal-mines		Prussian mines		Austrian Mines		
	Behm	Zimmermann	Behm	Zimmermann	Bentsien	Karup Gotha	Behm	Zimmermann	Küttner		Caron	Morgenbesser	Kaan	Zillmer	Behm
	For train servants		For the whole staff			For non-train staff			1874–1878	1869–1883	1870–1879	1868–1878	1882–1890	1884	1887
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
20	.00052	.00031	.00022	.00021	.....	.....	.00038	.00021	.00310	.00220	.00295	.....	.00037	.00100	.00019
25	.00117	.00118	.00053	.00072	.00072	.00065	.00044	.00054	.00420	.00320	.00373	.00259	.00092	.00132	.00088
30	.00218	.00281	.00125	.00153	.....	.....	.00084	.00096	.00530	.00600	.00472	.00421	.00215	.00183	.00076
35	.00342	.00447	.00212	.00284	.00257	.00237	.00172	.00220	.00990	.00900	.00754	.00787	.00362	.00267	.00152
40	.00671	.00740	.00382	.00474	.....	.....	.00326	.00382	.01860	.01650	.01278	.01383	.00652	.00410	.00305
45	.01005	.01129	.00662	.00811	.00910	.00831	.00662	.00698	.03580	.02460	.02332	.02219	.01130	.00663	.00609
50	.01897	.02159	.01217	.01557	.....	.....	.01272	.01375	.06960	.06650	.04335	.05104	.02076	.01129	.01218
55	.03568	.04163	.02317	.02935	.03190	.03050	.02558	.02687	.11060	.11200	.08056	.09566	.03953	.02023	.02437
60	.05618	.07623	.03928	.05728	.....	.....	.04651	.05427	.22800	.19710	.10331	.16729	.06709	.03815	.04878
65	.09765	.12307	.06763	.10002	.11740	.12350	.07426	.09752	.39500	.28660	.13249	.25823	.11564	.07571	.09747
70	.15789	.18165	.10153	.16023	.....	.....	.10633	.15781	.58280	.43230	.25989	.38294	.17330	.15814	.19493
75	.72022	.28962	.13306	.20704	.23010	.25470	.13782	.20617	1.00000	.58430	.50979	.61885	.22883	.39580	.38986
80	.....	.....	.40255	.23134	.....	.....	.25822	.23134	.....	.91470	1.00000	1.00000	.70291	.....	.77972

From T. E. Young: "The German Law of Insurance against Invalidity and Old Age."
Journal of the Institute of Actuaries, 29: 306 (1891).
Except columns 5 and 6, from C. W. Jackson: "Permanent Disability Benefits."
Transactions of the Actuarial Society of America, 10: 490.

because it was used as a basis for the German invalidity and old age insurance law. The following data are of interest in showing the actual experience as compared with the expected according to Behm's table.[4]

Active workers one year under observation	49,981
Expected invalids (according to Behm)	218.589
Actual invalids	206

An investigation of invalidity at the time of the occupation census in 1882 showed a rate of invalidity much lower than Behm's table except at the earlier ages, hence his table was considered safe.

The yearly rates of probability of invalidity according to these several tables are here presented for each fifth year in a table compiled from the earliest account of this experience published in English.[5] (Table 1.) The table by Bentzien for railway employees for the years from 1868 to 1889 and the table by Karup, used by the Gotha Life Insurance Company, a German company, have been added from another source.[6]

It is doubtful if any of these tables are of practical value in measuring the risk which confronts American companies. There is a question as to just what the term "invalidity" means, for the German tables are tables of *invalidity;* and invalidity may or may not have the same meaning as permanent and total disability in America. Moreover, the information as to the sources of the data and the methods of compilation is scant. The principal value of the tables consists in the fact that they indicate the general nature of the risk involved. As an actual measure of disability from the standpoint of American life insurance companies, it is probable that the German rates of disability are excessive. This view is generally accepted by American actuaries.

The first attempt to compute the cost of insurance against total disability from these rates of invalidity for the use of American companies was made by Mr. C. W. Jackson in an article on "Permanent Disability Benefits" published in the *Transactions of the Actuarial Society of America* for May, 1908 (10:490). Taking the rates of

[4] *Journal Institute of Actuaries*, 29:307.

[5] T. E. Young: "The German Law of Insurance Against Invalidity and Old Age." *Journal Institute of Actuaries*, 29:306 (1891).

[6] C. W. Jackson: "Permanent Disability Benefits." *Transactions Actuarial Society of America*, 10:490.

invalidity among railway employees as calculated by Zimmermann and by Karup (Columns 4 and 6, table one; and columns 1 and 2, table two), Mr. Jackson combined each of these with the American Experience table rate of mortality and from them calculated the extra premium which must be charged by American life insurance companies for the promise that, on the occurrence of total and permanent disability, the premiums thereafter coming due on the policy will be paid by the company.

English Experience

Mr. Jackson, however, finds the above tables defective "in that the same rate of mortality is assumed for both invalid and active members, which is far from the case." He felt too, that the data from which the invalidity rates were obtained did not correspond to American conditions. For these reasons he looked elsewhere for statistics and found data in the sickness and mortality experience of the British Friendly Societies included in the British Government reports (Sutton's Tables) for the years 1861 to 1870. The reports for these years covered over 770,000 years of exposure and 24,445 deaths. Inasmuch as the experience of the Friendly Societies makes no distinction between permanent and temporary disability there was no direct method of determining the number of cases of permanent disability and Mr. Jackson followed the plan of considering all cases of over two years' duration as permanent. Mr. F. B. Mead in criticizing this approximation,[7] explains that this method has been commonly used in arriving at rates of permanent disability among the Friendly Societies, and that, while some cases may be only temporary or partial, to balance these there are some who may have died before the end of the two years, and these latter cases would be considered totally and permanently disabled by American companies. From this experience, Mr. Jackson calculates (1) a table of mortality among Friendly Society risks, (2) rates of disability and (3) rates of mortality among disabled lives. The latter is of special importance in meeting the objection which Mr. Jackson had raised to his own tables, based on Karup's and Zimmermann's rates of invalidity. This paper by Mr. Jackson had an importance far beyond the bearing which his rates might have on the disability risks which American companies would

[7] *Transactions Actuarial Society of America*, 11: 308.

incur, for it started in the Actuarial Society of America, the open forum of this country for the discussion of actuarial questions, a discussion of the disability clause which has brought permanent and substantial results.

American Experience

Since the applicability of both the German and the English rates to American conditions is doubtful, an attempt was next made to find American experience. American fraternal societies have long been accustomed to grant permanent disability benefits and the stock accident and health companies also do a large business of this kind. Nothing has been published thus far from the experience of these accident and health companies and it is doubtful if their experience would be of any value in measuring the risk for life companies. For these companies issue contracts of only one year duration and it is apparent that they will refuse to renew a policy on the life of a person, who, because of old age or disease, will probably soon become a claim. Data from such experience, therefore, would represent a highly selected class of risks and would not adequately measure the hazard confronting a company which insures for life. Several important studies have been made from the experience of the fraternal benefit orders and they furnish the best information at present available for the use of American life companies. The objection is urged against these studies that the experience of fraternal societies does not approximate the experience of life companies sufficiently to be of real value, and that therefore the companies cannot safely base conclusions thereon. But it is doubtful whether the representatives of the regular life companies in making this objection have not in mind, as a standard, the American Experience table and demand that, before accepting any disability table, they must have one which is as perfect as this one. It should be recalled that life insurance was written long before the adoption of the American Experience table, on the basis of data fully as tentative as the disability tables now to be discussed. Mr. Arthur Hunter,[8] in discussing the acceptance by the state of New York of his own tables as a basis for the valuation of these disability policies, states that the approval of any legal basis of valuation should be temporary only and that fraternal experience can be used until

[8] *Transactions Actuarial Society of America*, 12: 338.

data are obtainable from the life companies. The experience of the two fraternal societies which has been most largely used in this connection, namely, the Independent Order of the Foresters and the Knights of the Maccabees of the World is, in the opinion of the actuaries who have studied them in connection with the disability benefit, not greatly unlike that of the life companies. Mr. Sidney H. Pipe says, apropos of the care taken by the Foresters before granting the disability benefit,[9] "The claimant on making application and being medically examined is immediately relieved from payment of premiums and is placed on a probationary list for six months. At the end of that period he is again examined and if the medical evidence is to the effect that the applicant is permanently disabled, the benefit is paid; if not, the probationary period is extended, or the applicant has to resume payment of premiums. The effect of this method is to eliminate, as far as possible, cases of temporary disability. In this experience such cases were rare and were not treated as cases of disability." Mr. Franklin B. Mead says of the Maccabees,[10] "The opinion is widely current that the composition of fraternal societies is at wide variance with that of the life companies, but I am not so sure that that is the case, particularly insofar as a society like the Maccabees of the World is concerned, where each risk is carefully investigated and inspected before being subjected to a thorough examination which is passed upon by a competent medical board. Hazardous occupations are carefully eliminated and the society does not operate in unhealthful localities such as Arkansas, Louisiana, Mississippi, and similar districts without special action by the Board of Trustees. . . . Its total and permanent disability claims are rigidly passed upon on their merits after a probationary period of six months."

Pipe's Rates

Mr. Abb Landis has also made a study of the rates of disability found among the Maccabees and the Royal League. The Maccabees' experience[11] alone covered a period of 18 years ending

[9] *Transactions Actuarial Society of America*, 11:172.

[10] *Supra*, 11:309.

[11] Mead: *Measure of Risk and Liability under the Total and Permanent Disability Benefits in Life Insurance Policies.* Address delivered at the annual meeting of the American Life Convention, Cincinnati, Ohio, Oct. 8, 1909, page 5.

in 1902. It included 361,690 lives; 1,367,760 years of exposure; 8,460 deaths and 871 cases of disability. The data for the Royal League are not given in detail in the source quoted. Mr. Landis' tables, however, have not been used directly in computing disability premiums for American life companies. The first attempt to do this from fraternal experience was made by Mr. Sidney H. Pipe, his results appearing in the *Transactions of the Actuarial Society* for October, 1909 (11:172) shortly after the publication of Mr. Jackson's article. Mr. Pipe's study was based on data of the Independent Order of Foresters from the records of the society in the province of Ontario, Canada. He has computed the cost of the privilege of allowing cessation of premiums upon disability from a mortality and disability table arranged by combining the rate of disability and of death among disabled persons, according to the Foresters' experience, with the American Experience table of mortality. In this he follows the same method that Mr. Jackson applied to the data of the British Friendly Societies. The two rates of disability and of death among disabled lives can be compared by referring to tables two and three on pages 22 and 24 respectively. An attempt has been made in charts one and two, pages 26 and 27 to represent these same results graphically. One of the noteworthy results of Mr. Pipe's study is a table in which he analyzes the 1,229 deaths which the data includes to determine the effect of the cause of disability upon the subsequent rate of mortality. His table shows the average interval of time between disability and death, for all causes, to be one year, four months and twenty-eight days.[12] It shows that the rate of mortality among disabled persons is affected much less by age than by the cause or the fact of disability. Chart two will corroborate this statement.

Mead's Rates

The next study of fraternal experience with the disability benefit was made by Mr. Franklin B. Mead,[13] using the data of the Knights of the Maccabees of the World. He used the same data as Mr. Landis, previously referred to, but his investigation extended further and included all the experience of the society from the date of its organization until October 1, 1909, a total of 2,927

[12] *Transactions Actuarial Society of America*, 11:178.
[13] *Supra*, 11:304.

TABLE 2

INVALIDITY PROBABILITY

Age	Karup	Zimmermann	British Friendly Societies	Foresters	Maccabees	Foresters and Maccabees
		Ry.employees non-train staff	(males)			
	[Jackson]	[Jackson]	[Jackson]	[Pipe]	[Mead]	[Hunter]
	1	2	3	4	5	6
15						.000509
16						.000510
17						.000511
18				.00021		.000512
19				.00021		.000513
20	.00039	.00021	.00210	.00021	.00012	.000515
21	.00043	.00026	.00212	.00022	.00013	.000517
22	.00047	.00033	.00215	.00024	.00015	.000519
23	.00053	.00040	.00218	.00027	.00018	.000521
24	.00059	.00047	.00221	.00032	.00021	.000524
25	.00065	.00054	.00225	.00038	.00025	.000528
26	.00071	.00062	.00233	.00044	.00029	.000533
27	.00078	.00071	.00245	.00052	.00032	.000539
28	.00086	.00080	.00261	.00058	.00034	.000546
29	.00095	.00085	.00281	.00063	.00035	.000553
30	.00107	.00096	.00305	.00066	.00037	.000561
31	.00123	.00113	.00331	.00068	.00038	.000571
32	.00143	.00131	.00359	.00070	.00039	.000584
33	.00170	.00156	.00388	.00072	.00041	.000600
34	.00201	.00187	.00418	.00074	.00044	.000619
35	.00238	.00220	.00450	.00076	.00048	.000642
36	.00280	.00248	.00483	.00078	.00052	.000670
37	.00325	.00282	.00517	.00081	.00056	.000703
38	.00373	.00310	.00552	.00084	.00061	.000741
39	.00423	.00340	.00589	.00087	.00065	.000784
40	.00447	.00382	.00630	.00090	.00069	.000832
41	.00535	.00437	.00676	.00093	.00073	.000885
42	.00597	.00488	.00728	.00096	.00077	.000943
43	.00667	.00554	.00787	.00100	.00082	.001006
44	.00745	.00626	.00853	.00104	.00086	.001075
45	.00835	.00698	.00925	.00110	.00090	.001151
46	.00940	.00771	.01007	.00118	.00094	.001236
47	.01063	.00887	.01104	.00130	.00099	.001331
48	.01208	.01026	.01221	.00146	.00105	.001438
49	.01377	.01178	.01360	.00163	.00113	.001559
50	.01574	.01375	.01520	.00182	.00124	.001696
51	.01799	.01609	.01705	.00202	.00139	.001851
52	.02055	.01838	.01915	.00223	.00157	.002027
53	.02346	.02075	.02155	.00245	.00179	.002230
54	.02681	.02373	.02435	.00273	.00210	.002468
55	.03074	.02687	.02760	.00306	.00255	.002752
56	.03540	.03059	.03167	.00345	.00321	.003095

INVALIDITY PROBABILITY—*Continued*

Age	Karup	Zimmermann	British Friendly Societies	Foresters	Maccabees	Foresters and Maccabees
		Ry.employees non-train staff	(males)			
	[Jackson]	[Jackson]	[Jackson]	[Pipe]	[Mead]	[Hunter]
	1	2	3	4	5	6
57	.04098	.03507	.03640	.00388	.00407	.003512
58	.04766	.04061	.04199	.00449	.00504	.004021
59	.05557	.04695	.04848	.00530	.00646	.004643
60	.06474	.05445	.05592	.00625	.00830	.005402
61	.07513	.06174	.06431	.00730	.01025	.006326
62	.08656	.07089	.07371	.00840	.01270	.007447
63	.09887	.07914	.08503	.00945	.01612	.008802
64	.11190	.08814	.10147	.01065	.02107	.010433
65	.12550	.09752	.12000	.01148	.02802	.012388
66	.13970	.10651	.14019	.01243	.03765	
67	.15460	.12009	.16286	.01801	.05043	
68	.16980	.13166	.18760	.02673	.06676	
69	.18510	.14479	.21395	.04107	.08894	
70	.20000	.15781	.24150	.06255	.11133	
71	.21410	.17085	.27150	.09266	.13936	
72	.22710	.18374	.30070	.13291	.16973	
73	.23920	.19246	.32895	.18480	.20189	
74	.25070	.19975	.35610	.24988	.23493	
75	.26140	.20617	.38200	.32950	.26920	
76	.27090	.21197	.40760	.42531	.31199	
77	.27850	.21730	.43104	.53876	.37192	
78	.28420	.22236	.45404	.67136	.47653	
79	.28940	.22692	.47600	.82461	.61873	
80	.29720	.23134	.49600	1.00000	.92776	
81	.31250	.23537	.51562			
82	.34100	.23922	.53175			
83	.38810	.24409	.54043			
84	.45850	.25046	.54175			
85	.55310	.25914	.53730			
86	.66610	.27164	.52536			
87	.78380	.29125	.51230			
88	.88790	.32641	.49784			
89	.96350	.40773	.48194			
90	1.00000	.80000	.46500			
91			.44400			
92			.42300			
93			.40200			
94			.38100			
95			.36000			

TABLE 3

MORTALITY PROBABILITY AMONG DISABLED LIVES

Age	Pensioned railway employees [Zimmermann]	Austrian miners [Kaan]	Upper Silesian miners [Morgenbesser]	British Friendly Societies (males) [aggregate] [Jackson]	Foresters [aggregate] [Pipe]	Maccabees [aggregate] [Mead]	Foresters and Maccabees [special aggregate] [Hunter]	American Experience table rate [For comparison]
15							.267	.007634
16							.254	.007661
17							.241	.007688
18							.229	.007727
19							.217	.007765
20				.2695	.538	.4000	.205	.007805
21				.2375	.450	.3471	.193	.007855
22				.2059	.406	.3036	.182	.007906
23				.1905	.373	.2677	.171	.007958
24				.1770	.346	.2386	.161	.008011
25	.08310	.18807	.12655	.1670	.322	.2155	.151	.008065
26				.1595	.308	.1976	.141	.008130
27				.1530	.295	.1840	.132	.008197
28				.1480	.283	.1738	.123	.008264
29				.1425	.274	.1661	.114	.008345
30	.06560	.10339	.10959	.1370	.265	.1601	.106	.008427
31				.1320	.257	.1552	.100	.008510
32				.1265	.249	.1510	.095	.008607
33				.1210	.243	.1464	.092	.008718
34				.1145	.237	.1433	.090	.008831
35	.06390	.06559	.09490	.1090	.230	.1406	.089	.008946
36				.1040	.225	.1382	.088	.009089
37				.1005	.222	.1361	.088	.009234
38				.0970	.218	.1343	.087	.009408
39				.0945	.215	.1328	.086	.009586
40	.06220	.08663	.08338	.0925	.212	.1315	.085	.009794
41				.0910	.210	.1304	.085	.010008
42				.0890	.208	.1295	.085	.010253
43				.0875	.206	.1288	.086	.010517
44				.0865	.205	.1282	.086	.010829
45	.05800	.06624	.07244	.0860	.203	.1277	.087	.011163
46				.0850	.202	.1273	.088	.011562
47				.0845	.202	.1270	.088	.012000
48				.0845	.201	.1268	.089	.012509
49				.0844	.200	.1267	.090	.013106
50	.05100	.06115	.06958	.0843	.199	.1267	.091	.013781
51				.0841	.199	.1267	.092	.014541
52				.0839	.198	.1267	.094	.015389
53				.0838	.196	.1268	.096	.016333
54				.0837	.195	.1268	.099	.017396
55	.04850	.05693	.05911	.0836	.194	.1268	.101	.018571
56				.0835	.192	.1269	.103	.019885
57				.0835	.190	.1269	.105	.021335
58				.0835	.187	.1270	.107	.022936

MORTALITY PROBABILITY AMONG DISABLED LIVES—*Continued*

Age	Pensioned railway employees	Austrian miners	Upper Silesian miners	British Friendly Societies (males) [aggregate]	Foresters [aggregate]	Maccabees [aggregate]	Foresters and Maccabees [special aggregate]	American Experience table rate
	[Zimmermann]	[Kaan]	[Morgenbesser]	[Jackson]	[Pipe]	[Mead]	[Hunter]	[For comparison]
59				.0835	.184	.1270	.109	.024720
60	.05120	.07052	.05523	.0836	.182	.1270	.111	.026693
61				.0837	.180	.1270	.113	.028880
62				.0839	.179	.1271	.114	.031292
63				.0842	.178	.1271	.114	.033943
64				.0845	.177	.1272	.115	.036873
65	.06290	.08340	.07324	.0852	.176	.1272	.115	.040129
66				.0861	.174	.1273	.115	.043707
67				.0860	.172	.1273	.115	.047647
68				.0905	.169	.1274	.115	.052003
69				.0935	.165	.1275	.115	.056762
70	.07800	.09773	.09637	.0970	.160	.1276	.115	.061993
71				.1010	.160	.1278	.116	.067665
72				.1050	.162	.1281	.116	.073733
73				.1095	.165	.1285	.116	.080178
74				.1145	.168	.1290	.117	.087028
75	.10680	.14157	.12290	.1205	.172	.1297	.118	.094371
76				.1265	.176	.1307	.119	.102311
77				.1330	.181	.1322	.121	.111064
78				.1400	.186	.1346	.126	.120637
79				.1480	.192	.1385	.133	.131734
80	.16260	.19328		.1570	.198	.1445		.144466
81				.1670	.205			.158605
82				.1780	.212			.174297
83				.1910	.220			.191561
84				.2070	.228			.211359
85				.2240	.236			.235552
86				.2420	.266			.265681
87				.2600	.302			.303020
88				.2770	.347			.346092
89				.2925	.396			.395863
90				.3055	.455			.454545
91					.532			.532466
92					.634			.634259
93					.734			.734177
94					.857			.857143
95					1.000 = Am. Exp. mortality after age 84			1.000000

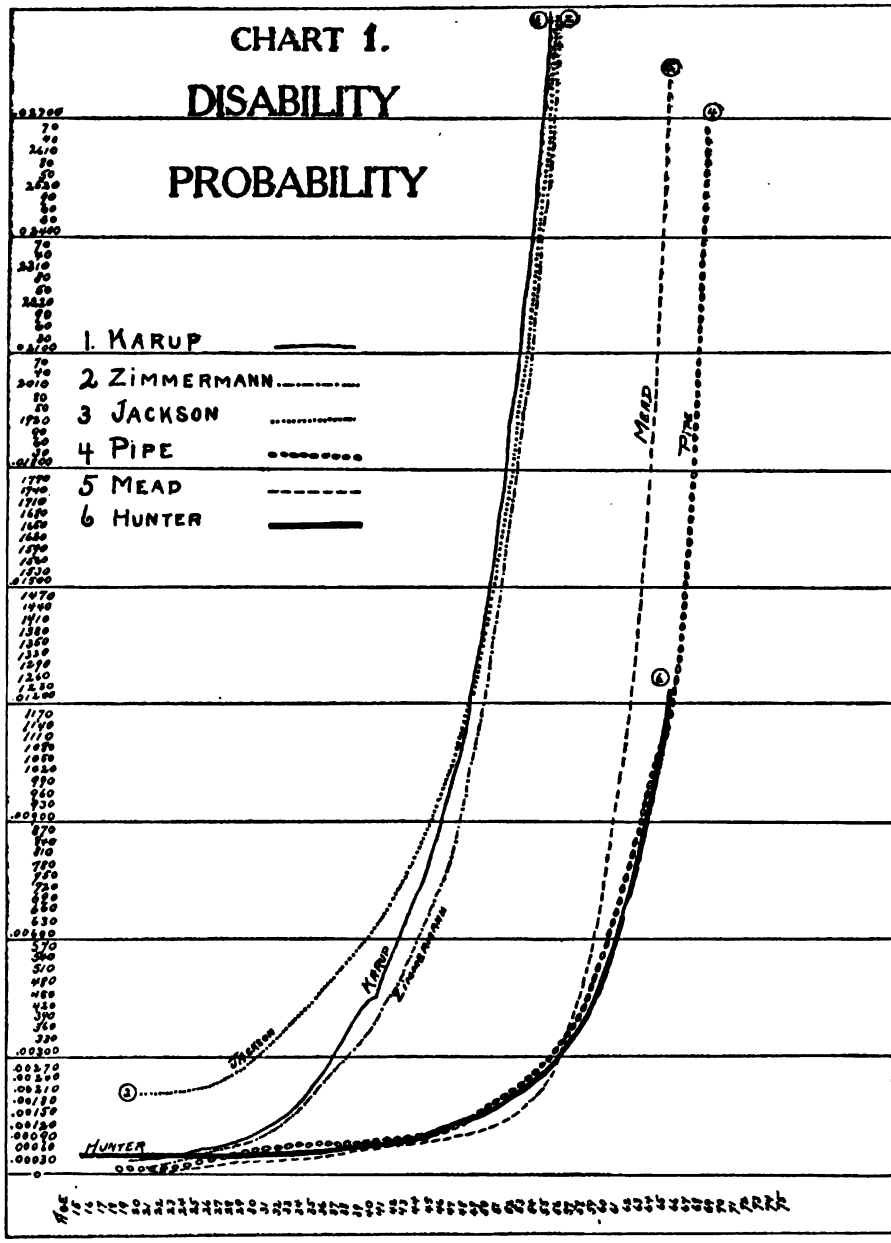
CHART 1.
DISABILITY
PROBABILITY
1. KARUP
2 ZIMMERMANN
3 JACKSON
4 PIPE
5 MEAD
6 HUNTER
MEAD
PIPE
KARUP
ZIMMERMANN
HUNTER

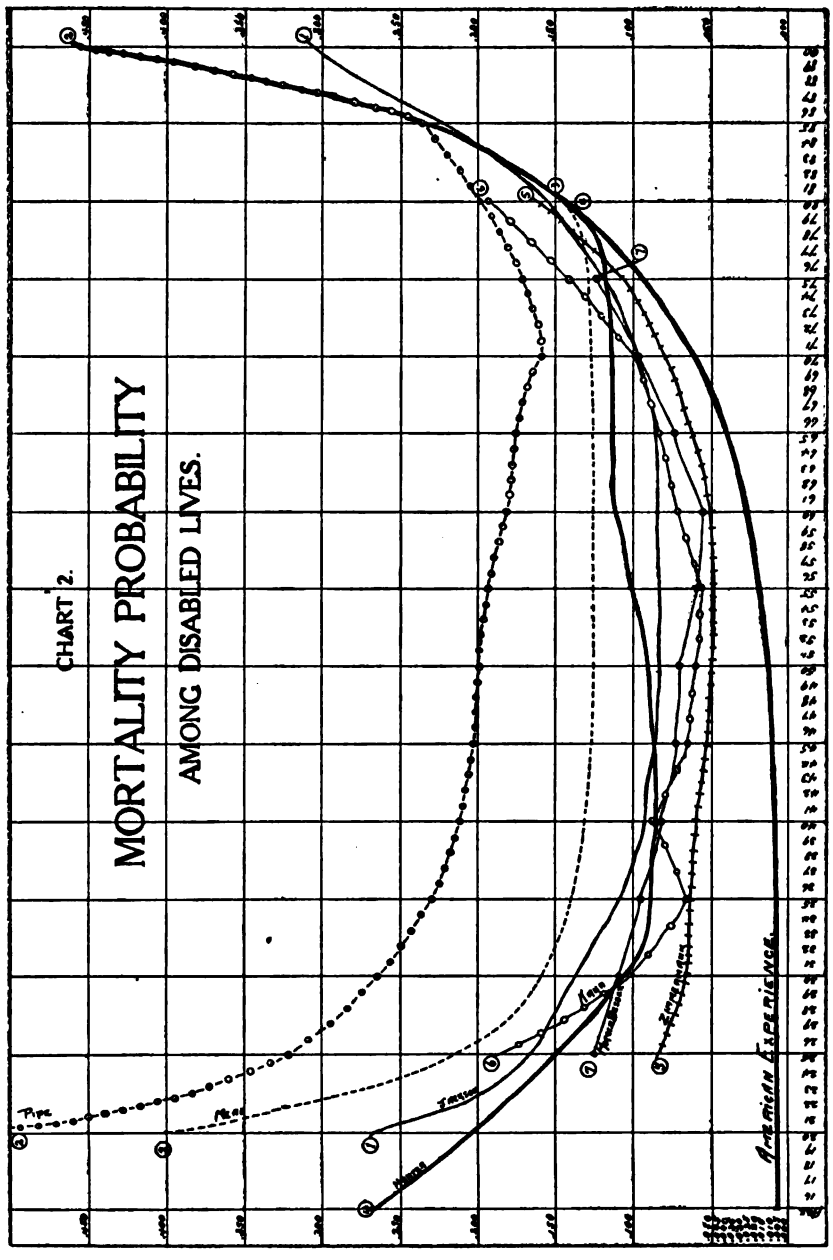
CHART 2.
MORTALITY PROBABILITY
AMONG DISABLED LIVES.

cases of permanent and total disability. In a later article in the same publication on "The Rate of Mortality among Totally and Permanently Disabled Lives Analyzed according to Duration since Time of Disability," [14] Mr. Mead made an investigation of the duration of time between disability and death and included data from the Knights of the Modern Maccabees embracing 245 invalids and 162 deaths, and from the Royal League embracing 1,972 invalids and 1,126 deaths, as well as the data of the Maccabees of the World, already referred to; a total experience of 5,144 invalids and 2,361 deaths.

McAdam's and Hunter's Rates

All the studies of disability made thus far have been based on the experience noted above. Mr. Arthur Hunter and Mr. Lucius McAdam* have both calculated tables. Mr. McAdam has used Mr. Mead's rates of disability and of mortality among disabled persons except for a slight correction from ages 69 to 80, and from them has computed premium rates both for the waiver of premium benefit and for the benefit of maturing the policy and paying it in installments, using for his purpose a different and simpler actuarial method than had previously been used. Into this actuarial problem it is not desired to enter here. Mr. Hunter's tables are generally credited among actuaries as being the best suited for measuring the risk involved. In fact they have already been made the basis for the valuation of policies with the disability clause in the state of New York. Mr. Hunter used for his purpose the data of the Foresters and the Maccabees which had previously been utilized by Messrs. Mead, Pipe and Landis. The difference in his treatment consists in the introduction of two "factors of safety." In the first place, he explains that net premiums should be calculated on an "ultimate" table of disability, that is, one from which the early policy years have been excluded. He presents the following table[15] of experience of the first five policy years in support of his position:

[14] *Vol. 12*, p. 75.

* Now deceased.

[15] *Transactions Actuarial Society of America*, 12: 47.

DISABILITY EXPERIENCE OF FIRST FIVE POLICY YEARS MEASURED BY THE ULTIMATE RATE

Policy years	Expected number becoming disabled	Actual number becoming disabled	Ratio of actual to expected disabled
1	483	46	10 per cent
2	386	201	52 per cent
3	330	231	70 per cent
4	288	222	77 per cent
5	254	265	104 per cent

This table shows that the rate of disability among newly selected risks is much smaller than after a policyholder has been a member of the society for several years, the ratio of the actual to the expected rate of disability being only 10 per cent the first year after the policy has been written and not equalling the expected rate until after the fourth year of the life of the policy has been passed. The table therefore clearly demonstrates that from the standpoint of safety it is advisable to eliminate the experience of these first four policy years. The tables by Messrs. Mead and Pipe were "aggregate" tables, that is, they included in their data the experience of these early years.

The second "factor of safety" introduced by Mr. Hunter refers to the question whether, in dealing with the death rate among disabled persons, a "select," an "ultimate" or an "aggregate" table of morality should be used. A "select" table would show the rate of mortality in its relation to the time elapsed since disablement has taken place. For instance, it would distinguish the death rate at age 40, among persons disabled at age 35, from the death rate at age 40 among persons disabled at age 39. In other words, it would show the effect upon the rate of mortality produced by the time which has elapsed since disability occurred, and it is composed of "select" rates of mortality for the several years immediately following disability. An "ultimate" death rate, like the "ultimate" disability rate first mentioned, eliminates these first years; in this case, the years immediately following the *occurrence of disability* and not, as in the case of "ultimate" disability, the years following the *writing of the policy.* The "aggregate" death rate represents the rate of death among disabled persons at each age regardless of

whether the experience includes mostly persons just disabled or those disabled for many years; and in computing it the complete data at hand for deaths at each age is included and no notice is taken of the duration of disability prior to death. Messrs. Mead and Pipe had used such an aggregate death rate. This is theoretically incorrect, because the death rate which will be experienced under the operation of the disability clause and which will determine how many premiums are to be paid by the insurance company is the death rate which results immediately after the occurrence of disability. An aggregate death rate, which, in the data for a particular year, does not note whether the data are of the first year after disability or of some other year; or an ultimate rate, which eliminates the first years after disability, are clearly incorrect. Mr. Hunter analyzed the data at his disposal to determine the "select" rate of death among disabled lives. The following table showing his results for each fifth year demonstrates that the rate of mortality is very high immediately after disability and decreases rapidly:[16]

RATES OF MORTALITY AMONG EACH 1,000 DISABLED LIVES

Policy years after disability	Ages				
	25	35	45	55	65
1	400	327	290	248	190
2	190	148	140	147	146
3	134	99	106	119	127
4	91	64	74	94	115
5	73	47	51	74	106
6	64	42	45	65	98
7	56	37	39	59	93
8	47	32	35	54	89
9	40	28	31	52	85
10	34	24	27	49	81

Mr. Hunter concluded, however, after having thus analyzed his data, that premiums based upon "select" death rates involved so much calculation as to be impractical and that an "aggregate" rate could be obtained which would be just as safe, by eliminating from the aggregate experience the deaths of the first policy year following

[16] *Op. cit.*, p. 51.

disability. This he called his "special aggregate" mortality rate among disabled lives. He computed specimen premiums to compare these several rates, as follows:[17]

EXTRA NET ANNUAL PREMIUM, CEASING AT AGE 60, TO PROVIDE FOR CESSATION OF PREMIUM UNDER ORDINARY LIFE POLICIES ON THE INSURED'S BECOMING DISABLED BEFORE AGE 60

Age at entry	With aggregate mortality among disabled lives	With select mortality among disabled lives	With special aggregate mortality among disabled lives
20	$0.11	$0.12	$0.13
40	.25	.29	.32
55	.93	1.03	1.12

These results bear out his conclusions that if "select" rates are safe, then "special aggregate" rates are equally so, for the latter rates show slightly higher premiums than the former. This is the same problem that Mr. Mead dealt with in his paper on "The Rate of Mortality amongst Totally and Permanently Disabled Lives Analyzed according to Duration of Time since Disability."[18] A table is here presented arranged from Mr. Mead's data (*op. cit.* p. 79), whereby his results can be compared with those of Mr. Hunter as shown on page 30:

RATE OF MORTALITY AMONG EACH 1,000 DISABLED LIVES

Policy years after disability	Ages				
	25	35	45	55	65
1	399	367	306	262	195
2	190	168	148	142	129
3	108	89	104	116	116
4	54	58	78	89	104
5	43	45	65	80	100
6	34	35	58	75	99
7	27	29	54	73	99
8	20	22	51	75	102

[17] *Op. cit.*, p. 57.

[18] *Transactions of the Actuarial Society of America*, 12:77.

TABLE 4

ORDINARY LIFE PREMIUMS

FOR CESSATION OF PREMIUMS UPON DISABILITY

Age	(1) Jackson	(2) Jackson	(3) Jackson	(4) Pipe	(5) Mead	(6) Mead	(7) Mead	(8) McAdam
	3½ per cent Karup invalidity Am. exp. mortality among disabled [aggregate]	3½ per cent Zimmermann invalidity Am. exp. mortality among disabled [aggregate]	3½ per cent B. F. S. males invalidity mortality among disabled [aggregate]	3½ per cent Foresters invalidity mortality among disabled [aggregate]	3½ per cent Maccabees invalidity Am. exp. mortality among disabled [aggregate]	3½ per cent Maccabees invalidity mortality among disabled [aggregate]	3½ per cent Maccabees invalidity Combined Am. fraternal mortality among disabled [select]	3½ per cent Mead's tables invalidity mortality
	Disability at any time	Disability at any time	Disability or age 80	Disability or age 80	Disability before age 80	Disability before age 80	Disability before age 80	Disability before age 81
20	1.30	1.15	.28	.24	.43	.31	.31	.32
25	1.92	1.70	.39	.34	.61	.45	.45	.46
30	2.80	2.55	.57	.48	.87	.65	.66	.67
35	4.52	3.98	.84	.71	1.29	.99	99	1.02
40	7.41	6.47	1.30	1.10	1.99	1.55	1.55	1.60
45	12.79	11.04	2.06	1.79	3.21	2.54	2.53	2.63
50	23.70	20.19	3.46	3.10	5.55	4.44	4.41	4.63
55	48.56	40.31	5.99	5.69	10.46	8.41	8.32	8.79
60	115.29	90.67	10.78	11.38	21.66	16.85	17.29	18.38
65	341.58	240.15	19.89			41.27	40.66	
70			35.95			107.35	105.35	
75						262.27	248.92	

TABLE 5

ORDINARY LIFE PREMIUMS

FOR CESSATION OF PREMIUMS UPON DISABILITY OCCURRING BEFORE AGE 60

Age	Extra premiums payable during life if active						Extra premiums ceasing at 60		
	(1) Mead	(2) Mead	(3) Mead	(4) Pipe	(5) Hunter	(6) McAdam	(7) Mead	(8) Mead	(9) Hunter
	3½ per cent Maccabees invalidity Am. exp. mortality among disabled [aggregate]	3½ per cent Maccabees invalidity Maccabees mortality among disabled [aggregate]	3½ per cent Maccabees invalidity combined Am. fraternal mortality among disabled [select]	3½ per cent Foresters invalidity Foresters mortality among disabled [aggregate]	3½ per cent ultimate disability rate special aggregate mortality among disabled	3½ per cent Mead's tables (a) invalidity (b) mortality	3½ per cent Maccabees (a) invalidity (b) mortality among disabled [aggregate]	3½ per cent Maccabees invalidity combined Am. fraternal mortality among disabled [select]	3 per cent ultimate disability rate special aggregate mortality among disabled
20	.12	.05	.05	.05		.05	.05	.06	.10
25	.17	.06	.07	.07	.10	.07	.07	.08	.13
30	.22	.09	.10	.08		.10	.10	.11	.17
35	.28	.12	.13	.10		.15	.14	.16	.23
40	.37	.16	.18	.15	.22	.22	.21	.23	.32
45	.48	.22	.24	.20		.34	.32	.35	.46
50	.62	.30	.31	.27		.57	.54	.57	.70
55	.73	.37	.37	.30	.37	1.10	1.05	1.05	1.12

TABLE 6

TWENTY PAYMENT-LIFE PREMIUMS

FOR CESSATION OF PREMIUMS UPON DISABILITY OCCURRING BEFORE AGE 60

Age	Extra premiums payable throughout paying period, if active					Extra premiums ceasing at 60 in any event		
	(1) Pipe	(2) Mead	(3) Mead	(4) Mead	(5) McAdam	(6) Mead	(7) Mead	(8) Hunter
	3½ per cent. Foresters (a) invalidity (b) mortality among disabled [aggregate]	3½ per cent Maccabees invalidity Am. Exp. mortality among disabled [aggregate]	3½ per cent Maccabees (a) invalidity (b) mortality among disabled [aggregate]	3½ per cent Maccabees invalidity Combined Am. Fraternal mortality among disabled [select]	3½ per cent Mead's tables (a) invalidity (b) mortality	3½ per cent Maccabees (a) invalidity (b) mortality among disabled [aggregate]	3½ per cent Maccabees invalidity Combined Am. Fraternal mortality among disabled [select]	3 per cent (a) ultimate disability rate (b) special aggregate mortality among disabled
20	.03	.05	.02	.03	.03	.02	.02	.06
25	.03	.07	.04	.04	.04	.04	.04	.08
30	.04	.11	.06	.07	.07	.07	.07	.11
35	.04	.16	.09	.11	.10	.11	.11	.16
40	.09	.26	.16	.18	.17	.18	.18	.25
45	.18	.43	.25	.28	.33	.31	.33	.45
50	.29	.64	.37	.37	.60	.57	.58	.72
55	.32	.78	.42	.42	1.17	1.10	1.09	1.17

TABLE 7

TWENTY YEAR ENDOWMENT PREMIUMS

FOR CESSATION OF PREMIUMS UPON DISABILITY OCCURRING BEFORE AGE 60

Age	(1) * Mead	(2) * Mead	(3) * McAdam	(4) † Hunter
	3½ per cent Maccabees Invalidity Am. Exp. mortality among disabled [aggregate]	3½ per cent Maccabees (a) invalidity (b) mortality among disabled [aggregate]	3½ per cent Mead's tables (a) invalidity (b) mortality	3 per cent (a) ultimate disability rate (b) special aggregate mortality among disabled
20	.06	.04	.04	.11
25	.13	.06	.07	.13
30	.17	.09	.10	.17
35	.23	.13	.14	.23
40	.35	.21	.22	.33
45	.54	.31	.40	.54
50	.73	.42	.68	.81
55	.83	.46	1.24	1.24

* Extra premiums payable throughout premium paying period, if active.

† Extra premiums ceasing at age 60 in any event.

TABLE 8

PAYMENT OF SUM INSURED UPON DISABILITY

Age	Fackler		Mead				McAdam						
	3½ per cent (a) ultimate disability (b) special aggregate mortality among disabled } Hunter's tables		3½ per cent Maccabees invalidity Am. Exp. mortality among disabled				3½ per cent Mead's (Maccabees') probabilities (a) invalidity (b) mortality among disabled						
	20 installments i.e. $736 if disabled		20 installments i.e. $736 if disabled				Sum insured i.e. $1000 if disabled						
	Extra premium ceasing at age 60		Extra premium continuing throughout prem. paying period										
	Disability before 60		Disability before 80				Disability before 81			Disability before 60			
	Ordinary life	20 payment life	Age	O. L.	20 P. L.	20 End.	O. L.	20 P. L.	20 End.	Age	O. L.	20 P. L.	20 End.
20	.06	—.04*	20	.55	.22	.07	1.10	1.20	.08	20	.18	.21	.08
35	.19	—.05*	25	.75	.26	.11	1.46	1.49	.13	25	.23	.25	.13
50	.80	.65	30	1.01	.30	.15	1.95	1.85	.18	30	.29	.32	.18
			35	1.43	.33	.20	2.69	2.30	.25	35	.39	.38	.25
			40	2.11	.41	.23	3.82	2.91	.40	40	.53	.48	.40
			45	3.29	.64	.26	5.65	3.85	.84	45	.78	.72	.70
			50	5.56	1.69	.36	8.91	5.84	2.45	50	1.10	1.12	1.15
							15.21	11.36	8.36	55	1.91	1.90	2.00
							28.75	25.66	23.62	60			

*Less than regular Am. Exp. 3½ per cent by this amount

Mr. Mead made a comparison of the two methods of treating the rate of mortality among disabled lives as here discussed, that is, as a select or as an aggregate rate, by computing the extra premiums for cessation of premiums upon disability, if happening before age 60, the extra premiums to cease at 60 in any event. In the first column (*a*) the Maccabees aggregate rate of mortality among disabled lives was combined with the American Experience table of mortality and the Maccabees probability of invalidity; while in column (*b*) the rate of mortality among disabled lives used was that of the Combined American Fraternal Experience analyzed in "select" form.

Age	Ordinary life	
	(*a*)	(*b*)
20	$0.05	$0.06
25	.07	.08
30	.10	.11
35	.14	.16
40	.21	.23
45	.32	.35
50	.54	.57
55	1.05	1.05

These rates, however, cannot be compared with those of Mr. Hunter, since they are computed on a 3½ per cent interest basis, while Mr. Hunter used 3 per cent.

For the purpose of readily comparing the results which these several actuaries have reached, tables of the premiums which they have computed are presented herewith (tables 4 to 8 inclusive). An attempt has been made to aggregate the results in such a manner as to show the important differences in the tables. It will be noted, for example, that all computations, with the single exception of Mr. Hunter's, have been made on a 3½ per cent interest basis. The tables indicate the source of the rate of invalidity used in each case and of the rate of mortality among disabled persons; and the nature of the latter, whether it is an "aggregate" or a "select" rate. Messrs. Hunter and Mead alone have attempted to use a select rate of mortality among disabled lives.

Table No. 4 shows the extra premiums required upon ordinary life policies for the benefit of waiving premiums at any time after disability occurs. Some of the tables, it will be noticed, provide for the cessation of premiums upon "disability or age 80 " that is, the policy will become full paid at age 80 whether the insured is disabled or not. This makes the policy an endowment at age 80. Others provide for waiver of premiums upon "disability before age 80." The benefit in this case does not extend beyond age 80, but it is the opinion of Mr. McAdam[19] that these rates can fairly be compared with the rates where no age limitation is made, for there are few instances where at age 80 the insured cannot be shown to be disabled in the sense of being "incapacitated to follow any work for profit." The rates shown in this table clearly demonstrate that, in case no age limitation is placed upon the granting of the waiver of premium benefit, it cannot be allowed without a substantial increase in premiums, especially at the later ages. The extra sums required at age 50 for example, range, according to the different tables based on American or English experience, all the way from $3.10 to $5.55 per $1,000 insurance per year. In this fact undoubtedly lies the reason why so many companies have limited the benefit to age sixty.

Table No. 5 shows the extra sum to be added to the ordinary life premium in case the disability benefit is limited to ages prior to 60. Two methods have been followed by the actuaries in computing these premiums; one assuming that the extra premium for the disability benefit will continue throughout the premium-paying period if the insured survives and does not become disabled; the other assuming that the extra charges will cease when the age limit is reached (age 60 in table 5) whether disability has occurred or not. The specimen premiums are so grouped in this table that comparisons can be readily made between the rates computed by different actuaries. The two tables, 4 and 5, afford other valuable comparisons in connection with the problem as to what rate of death is to be expected among disabled lives. It will be remembered that Mr. Jackson in his Karup and Zimmermann tables assumed that the rate of mortality after disability would be the same as the American Experience table rate and computed his premiums accordingly, while in his Friendly Societies table he used the rate of mortality

[19] *Total Disability Benefits*, p. 57.

that was found to occur among friendly society risks. Mr. Mead likewise in an early table[30] computed premiums based on the assumption that the American Experience rate of mortality would be experienced among disabled lives; but aside from these exceptions all the tables have used rates of mortality after disability, based on actual experience among disabled lives.

The effect of introducing this specialized rate of mortality is well shown by comparing Mr. Mead's rates in column 5, table 4, with his rates in column 6 of the same table. With the American Experience rate of mortality among disabled lives the cost at age 60 is $21.66 per year; with the rate of mortality *among disabled lives* according to the Maccabees' experience the rate at the same age is $16.85. Undoubtedly a considerable reason for the prohibitive size of the Karup and Zimmermann rates computed by Mr. Jackson is this use of the same rate of mortality among disabled as among active lives. The same results are well shown by comparing Mr. Mead's rates in tab e 5 column 1 with column 2. The effect of the introduction of "select" rates of mortality among disabled lives is shown by a comparison of Mr. Mead's rates in columns 7 and 8, or columns 2 and 3, of table 5. The premiums are slightly higher where the "select" rates have been used, 57 cents, for example, at age 50 as compared with 54 cents with aggregate rates of mortality. The combined effect of "ultimate" rates of disability and "select" (or "special aggregate") rates of mortality among disabled lives, the two contributions of Mr. Hunter, are shown by comparing his rate in column 5, table 5, with the rates of Messrs. Pipe or Mead in columns 2, 3, or 4 of the same table. These same results will be obtained by making similar comparisons of rates on twenty-payment life policies (table 6) and twenty-year endowment policies (table 7). A further noteworthy feature about the two latter tables is the fact that the extra benefit when attached to such policies costs so little as to be almost negligible, and has led many companies to grant the waiver of premium benefit without any additional premium.

It is impossible to obtain premiums to compare in cases where the benefit upon disability takes the form of maturity of the policy and its payment in some form to the insured. But three actuaries

[30] Mead: *The Measure of Risk and Liability under the Total and Permanent Disability Benefits in Life Insurance Policies*, Tables, G, H, and I.

have thus far computed premiums for this form of benefit, and their results are presented briefly in table 8. Mr. Fackler's premiums are based on Hunter's rates of disability and mortality; Mr. Mead's rates on his own earlier tables; and Mr. McAdam's rates on Mead's tables in which he used the American Experience rates for mortality among disabled lives. Messrs. Mead and Fackler have the same benefit in mind, namely, the payment of the policy in twenty installments following disability. This benefit has a present value, at the time when installments begin, of $736 on a 3½ per cent interest basis. Mr. Fackler's rates show that this benefit is less costly than the waiver of premium benefit in every instance given except the ordinary life rate at age 50 where the rate is 80 cents extra for payment of the policy in twenty installments and 70 cents for the waiver of premium. In the case of the twenty-payment life policy, the policy with this benefit attached actually costs less than the regular American Experience 3½ per cent premium at ages 20 and 35. This is easily explainable. The policy matures for an equivalent of $736 and this is a smaller sum than would be the present value of $1,000 paid in a lump sum at death, were its present value worked out on the basis of the rate of mortality among disabled lives. At first glance it appears that Mr. Mead's tables lead to an entirely different conclusion, for they show that a considerable extra premium must be charged to cover this benefit. But if this table (the ordinary life column, for example) be compared with Mr. Mead's premiums for waiver of premium only on the ordinary life policy, (see table 4, column 5) it will be found that the result is the same, namely that the payment of the sum insured in twenty installments is cheaper for the company than mere cessation of premiums upon disability. Mr. McAdam's tables are calculated on the basis that the face value of the policy, $1,000, will be paid immediately in one payment and therefore cannot be compared with Mead's and Fackler's premiums. These comparisons are mainly valuable because they lead to the conclusion that there is not a radical difference in the rates that have been computed by actuaries on any experience that is reasonably homogeneous. Mr. Hunter has stated[21] that it is useless to attempt any further actuarial refinements until experience is available from the old line companies themselves.

The last objection brought against the disability clause was

[21] *Transactions of the Actuarial Society of America*, 12: 50.

that there are not sufficiently accurate statistical data in existence on which to base rates. The foregoing studies by American actuaries, having in mind the application of the data to the business of old line life insurance companies, have overcome this objection and have furnished us with tables of rates which are generally agreed among actuaries to be safe.

PART II

THE DISABILITY CLAUSE AMONG AMERICAN LIFE INSURANCE COMPANIES

CHAPTER IV

Restrictions on the Use of the Disability Clause as Regards Policies or Risks

The foregoing statistical study of disability insurance has been introductory to the main theme of this book, viz., a detailed study of the clauses issued by American life insurance companies. One hundred and forty-four companies organized on the old line plan, were found by the writer to have inserted the disability clause in some or all of their policies since 1896. Of these 144, seven have reinsured or been absorbed by other companies; one company has ceased issuing the disability clause; and one has ceased writing life business, now confining its attention to casualty insurance. This leaves 135 companies now issuing the clause. Copies of the clauses of 114 of these companies have been obtained from the companies and 13 other clauses were found in the Spectator Company's "Handy Guide" for 1911. Only eight companies, therefore, out of the total of 135 are not included in the following discussion.

The study of these clauses will include an analysis of the following features:

1. Policies or risks on which the clause is not granted.
2. Definition of disability.
3. Age and time limits to the application of the clause.
4. Benefits granted.

Term Insurance

Since the disability clause is in a more or less experimental stage, most companies have seen fit to restrict its use to those policies or those risks on which they expect to have a normal mortality experience. The case in which the clause is most frequently refused is in term insurance and various reasons are advanced in explanation. The reason given by the actuary of one of the larger companies for making this exception is that the reserves held under a term policy

are very small. It is true the risk in this case is much greater than in the later years of an endowment policy, for instance, because of the existence of a large reserve on the endowment policy, but this is no reason why the premiums charged should not consider the actual risk involved. This company charges a flat rate of only 25 cents for the clause.

The objection of many companies to including the clause in term policies is in direct line with their desire to discourage term insurance. It is a well known fact that most old line companies have for years worked on the assumption that the field for term insurance should be strictly limited, and that there are few situations which justify its issue. If it be granted that term policies are to be restricted to a few isolated cases where temporary business protection is demanded, then some force must be given to such reasoning. But there is a broader field of use for term insurance as pure protection against untimely death during the productive period of a man's life. It is not necessary to the safety of an insurance company that investment features be added to every type of policy. The gradual realization of this fact is making term insurance more popular with the insuring public and if this development continues, as it in all probability will, and if the disability clause becomes a standard provision in policy contracts, then there must be a corresponding demand for its inclusion in term policies. The question therefore of combining the disability rider with the term policy becomes a very important one.

Another and a more serious objection, however, is advanced against placing the clause in a term policy. Some term policies today allow renewal at the expiration of the term, or conversion to some other kind of policy, these privileges being granted without a new medical examination. The presence of the disability clause in a contract of this nature may well place the company at a disadvantage. Thus, in the case of a renewable policy if disability should occur shortly before the expiration of the term the company must pay the premiums for the remainder of the term, and the insured would be almost certain to renew the policy and thus oblige the company to pay the higher premium due after renewal. This appears on its face to be a very serious objection. It must be recognized that the cost of the clause on this policy should include the cost of paying the higher premium which applies after renewal.

If this is done the company can oppose no valid reason for making an exception in the case of renewable term insurance. That the objection is not a serious one, however, and that the cost would not be prohibitive is shown by a study of the rate of mortality among disabled persons as already explained. On page 21 it was shown that the average length of life after disability is only a few years at the utmost; that the company can usually proceed on the theory that a disability claim will very shortly be a death claim; and that, therefore, the extra cost of the feature as attached to renewable term policies will not be great. With convertible term policies, the case is different. Such policies might, after disability has occurred, be converted into short term endowments, thus obliging the company to pay the larger premium which the latter cost. By this means a policyholder might convert a term policy costing ten dollars per year into a ten-year endowment costing one hundred dollars per year and by the terms of his agreement compel the company to pay one-hundred-dollar premiums after disability in place of ten-dollar premiums. This would be equivalent to obtaining a ten-year endowment policy without paying for it. This is manifestly unfair, and a company writing participating insurance cannot treat its other policyholders fairly and allow such practices. The solution, however, lies, not in refusing to grant the disability clause on term policies, but in refusing to grant the waiver of premium benefit after conversion of the policy. Only one company has been found to have availed itself of this protective feature. The clause issued by the Columbian National on term policies reads: "Such payments (*i.e.* premiums by company) to cease, however, should the insured . . . avail himself of the exchange or renewal privileges of said policy." Other companies may contemplate a refusal to pay benefits after conversion, but the reservation of such right does not appear in the clause.

Endowment Policies

One company refuses to grant the clause with endowments. This action is difficult to understand, for a glance at the extra premiums to be charged for the clause as computed by the actuaries already referred to will show that there is generally no material difference between its cost on endowments and on ordinary life or limited payment life policies. If any policy tends to cost more

than others it is probably the ordinary life. Some companies recognize this fact by refusing to include the clause on ordinary life po icies in case of certain hazardous risks. But there seems to be no particular reason for the application of such a limitation to endowment policies.

Joint Life Policies

It is frequently the case that the disability clause is not included in joint-life policies, the companies claiming that there is difficulty in calculating the benefits under two-life policies. The question immediately arises, for instance, whether the benefit will be paid when both are disabled or when only one. It is easy to see that the probability that both of two persons will become disabled is very small and that the benefit in this case would have little value. The Home Life of New York meets this difficulty by agreeing to waive one-half the joint-life premium in case one person is disabled or the whole premium where disability occurs to both. This is a simple and satisfactory solution. The Prudential Insurance Company grants the clause on joint-life policies on two lives, but refuses it on policies covering three or more lives. No fault can be found w th this restriction, for such a benefit would be so small as to be insignificant. To be sure the cost of the clause when included in joint-life policies can be made dependent on paying the benefits for disability the same as death benefits. Death benefits, for example, are paid under the ordinary joint-life policy upon the death of either of the insured. It is possible likewise to pay the disability benefit under this policy in case of the *disability* of *either of the insured.* It is a question, however, whether this is not insisting on too great actuarial refinements at a time when our experience with disability insurance is limited; and whether the scheme of the Home Life is not equally satisfactory.

Some of the companies writing industrial business refuse to grant the clause in connection with intermediate policies, *i.e.*, policies with a face value of $250 or $500. This is in line with their reasons for refusing it altogether on any strictly industrial business, for a poorer class of risks is found among industrial policyholders.

Women

Chief among the risks which are ordinarily excluded from the benefits of the disability clause are women. Disability s usually so

defined as to mean inability to carry on any occupation for profit, and since it is frequently the case that women have no occupation, many companies exclude them without exception. Other companies make exception only in case of married women and women who have no occupation.

Impaired Lives and Hazardous Occupations

Sub-standard lives insured under some lien plan, or under a policy different from the one applied for, cannot be granted disability protection under this clause without departing from a conservative basis, and a number of companies make this exception. To grant the clause in such a case would subject a company to a disability rate much above the normal, and it is well for the companies to follow the line of conservatism rather than assume so large a risk. Closely allied to this limitation are two other exceptions which are commonly made, viz.: (1) where the insured is engaged in some hazardous occupation and (2) where a partial impairment of the life already exists. The reason for the first exception is obvious. As regards the second, if a person has already lost one hand, or foot, or has impaired sight, etc., it is apparent that the probability of becoming totally disabled is greater than in cases where no impairment exists. This defect furnishes a pretext on the part of a few companies for refusing entirely to grant disability protection. Such a sweeping denial of protection against those kinds of disability which are in no way affected by the fact of partial disability, as for example, impaired sight, is not necessary and is hardly fair to the insured. It should be sufficient merely to eliminate benefits in those cases affected by the partial impairment and allow the clause to cover all other causes. Some companies follow this procedure.

Few of the foregoing restrictions appear in the disability clauses themselves, but the companies reserve the right to withhold the feature or refuse to give the benefit at all. In some cases where the clause is a part of every policy it must be cancelled by endorsement; and many companies give their medical director full discretion to exclude it from any policy submitted to him. A number of companies, however, advertise that they make no restriction whatever as to the policy or the risk on which they will grant the disability clause.

CHAPTER V

The Definition of Disability

In discussing the objections to the disability clause it was found on page 13 that the companies feared difficulties would arise in deciding what constituted total and permanent disability within the meaning of the contract, and it was feared further that they would find it necessary to resist many unjust claims. This is forcibly stated by the president of one of the companies which does not issue the clause, in the following words:[22] "A company . . . with a total disability clause in its contracts has, or will have a large number of claims which it cannot properly approve and allow. This leads to litigation, and litigation leads to expense, and worst of all to dissatisfaction. . . . One claim disallowed will more than offset in any agency all the benefits that can be gotten out of the total disability clause *as a talking point.*" This quotation clearly points the way toward the difficulties to be encountered in defining disability, when the company's point of view is "a talking point."

With Reference to Occupation

If the viewpoint here held is correct, any definition of disability should be broad enough to include any and all cases of total and permanent incapacity to perform the work that a man is fitted by his training to do. An injury to the fingers of a concert violinist, for instance, may totally incapacitate him thereafter from carrying on the duties of his profession and he is in this sense totally disabled. The same injury is of little consequence to a commercial salesman. Loss of speech on the other hand would mean to the latter inability thereafter to follow his profession but might scarcely affect the violinist. In the same way it might be shown that there are many injuries, diseases, or defects that have vastly different effects on the earning capacity of men in different occupations. If protection is to be obtained against the financial consequences of disability these different results must be considered in defining the

[22] Frederick W. Jenkins in *The Security Agent*, March, 1913.

clause offering such protection. The usual form of definition requires that 'the insured shall furnish due proof that he has become wholly and permanently disabled by bodily injury or disease, so that he is and will be permanently, continuously and wholly prevented thereby from performing *any work* for compensation or profit. . . . " This definition has the common fault of all disability clauses and furnishes grounds for serious criticism if the clause is to be interpreted literally. The situation cannot be better stated than was done in a circular which one prominent company sent to its agency force in explanation of the clause which it issues: "The disability must be total, not merely such as would preclude the insured from following his ordinary occupation, but such as would *permanently*, *continuously* and *wholly* prevent his performing *any work whatsoever* for compensation or profit, or from following *any gainful occupation whatsoever.*"[28] A literal interpretation of this statement leads to the conclusion that if the violinist had his fingers permanently injured so that he must give up his occupation, still he is not permanently disabled if it is possible for him to perform manual labor Such clauses are not looking to the needs of the insured but are considering only the company and its desire for a "talking point." In spite of the fact that all of the clauses are stated in this objectionable way it is doubtful if all the companies intend to interpret them with such severity as the company here quoted has declared its intention of doing; for the impression obtained through correspondence with many companies concerning the disability clause is to the effect that it has in the past and will henceforth be liberally interpreted in any cases where deliberate fraud or dishonesty is not present. Some time must elapse before there will be a sufficient body of precedents, either voluntary on the part of the companies or through court decisions, to enable one to predict the force of the present definition of disability, restricted as it is with relation to the occupation of the insured. Liberal interpretation is therefore to be encouraged; but the insured can never feel safe until the contract clearly states that disability will be defined with reference to his particular occupation and not on the basis of his fitness to follow any gainful calling whatsoever.

[28] The italics are in the original.

With Reference to Cause of Disability

Disability may be defined as above with respect to its effect upon the occupation or profession of the insured or it may be considered with reference to the causes of disability. From the latter viewpoint the clause quoted above contains much that is commendable. It promises benefits for disability due to *bodily injury or disease.* That bodily injury and disease probably cover the majority of cases of disability is evident from a study of a very interesting table prepared by Mr. Sidney H. Pipe in an article already referred to.[24]

Mr. Pipe analyzed 1,229 cases of death among disabled persons so as to show the duration of disability and the distribution of deaths by cause of disability and by age. The causes of disability and the relative frequency of the different causes are of particular interest for present purposes. The following facts are taken from Mr. Pipe's table.

Cause of disability	Number of cases per 1,000 total cases
1. Consumption	234.
2. Paralysis	127.8
3. Insanity	120.0
4. Diseases of the circulatory system	72.7
5. Diseases of the urinary system	52.9
6. Cancer	47.3
7. Injury	44.0
8. Balance	301.3

Bodily injury or disease therefore covers all cases with the possible exception of the last or miscellaneous group the composition of which is not known. One hundred and one companies using the clause define disability in this way. Over half this number (52 in all) further specify that they will consider as disability within the meaning of the clause "the entire and irrecoverable loss of the sight of both eyes, or the severance of both hands above the wrists, or of both feet above the ankles, or of one entire hand and one entire foot." These definitions lead one to believe that the companies using them probably intend to pay benefits in case of disability due to any legitimate cause not excepted in the policy.

It is doubtful whether the companies will include as reasons for paying benefits, deafness, dumbness or insanity. Deafness is

[24] *Transactions of the Actuarial Society of America,* 11:179.

specified by four companies; while the same four and, in addition, four more, name insanity or mental disorder as an accepted cause. No company has made any mention of dumbness and yet this is a contingency that the insured will certainly want to have covered. The preservation of the powers of speech and hearing are vitally important in many occupations and they should be included within the scope of any disability clause where affecting the occupation. Several companies of which the Prudential may be regarded as a type, agree to pay benefits upon the occurrence of disability *from any cause whatsoever*. There is left no doubt as to the scope of this clause.

Restricted Definitions

There are fifteen companies among the total of 127 investigated which have placed limitations upon the causes which will be acceptable for payment of benefits. Some of these limitations may be permissible but some cannot be allowed on any just grounds. The extreme "conservatism" shown in some of these definitions leads one to suspect that the companies were greatly in need of a selling feature and that they secured it in the guise of a supposed "disability" clause. Among the least objectionable of these limitations may be named the following:

1. *Disability due to voluntary acts of the insured not included.*
   - *a.* Disability must result from causes beyond control of the insured.
   - *b.* Bodily injuries must be "external, violent and accidental."
   - *c.* Disability must not be due to voluntary acts of the insured or to a defect or condition existing before the policy was taken out.
   - *d.* Disability must not be due to wilful or immoral acts on the part of the insured.
   - *e.* Disability must not be due to self-inflicted injuries.
   - *f.* Disability must not result from actual or attempted violation of the law.
   - *g.* Disability must not result from intoxication.
2. *Disability due to military or naval service in time of war not included.*

To these limitations there can be no serious objection. They will probably have the same history as have similar exceptions in the application of the regular benefits under life policies. Policy contracts once contained many restrictions as to travel, residence or occupation that are found in very few instances today.

The remaining companies to be considered have defined disability in such a way as clearly to indicate that their intention is to

provide a selling feature and not furnish disability insurance. For in each case the fact is plain that disability from certain causes only is insured against. Cases exist where clauses are issued covering "blindness, deafness and disease or mental disorder." Disability due to bodily injury is therefore not an accepted risk. Statistically this exception is not of great importance since the table above shows that 4.4 per cent only of disability is due to injury, and yet that 4.4 per cent may be of great importance to the individual. In the aggregate this figure may represent the proportion contributed by bodily injuries to all disability; but for the man who travels a great deal this contingency forms a much greater percentage of risk of disability to which he is subject. The company which makes an exception in the case of bodily injury has no right to compare its clause with that of a company insuring against disability "from any cause whatever." Three companies make their clauses applicable in case of accidental injuries but only in case there results *within 90 days of the accident* a loss of sight or the amputation of two limbs. Without the 90-day limitation the same feature is found in another clause. Two of these companies likewise exclude disability due to insanity or to disease complicated with insanity. This comprises 12 per cent of all cases according to Mr. Pipe's table quoted heretofore.

Assignments or Loans Not Permitted

In two cases benefits are promised upon disability of the insured only in case the policy "is still his unencumbered property." These companies insist on cancelling the clause upon an occurrence which can have no possible effect upon the risk incurred and therefore has no just relation to the disability clause. If any effect is produced it must be through an increase in moral hazard; and it is difficult to see how a loan on, or an assignment of, a policy will increase the moral hazard of disability. Some opponents have entertained grave fears for the success of disability insurance because of the existence of this supposedly personal element in the risk. Moral hazard, to be sure, exists in great measure in sickness insurance and malingering offers one of the greatest problems of the health company; but its influence upon *total* and *permanent* disability is not so clean-cut. There is danger that the disability may not be permanent but there is an easy way of caring for such a con-

tingency. Several companies have provided a commendable method of meeting this situation by requiring a probationary period of from six months to one year after disability before benefits will be paid, and if recovery takes place after this time has expired the "recovery" feature common to nearly every clause takes care of the situation. Moral hazard is indeed so small an element in disability insurance that it can well be disregarded and it does not furnish a valid reason for cancelling the clause after an assignment of, or loan upon, a policy.

Most objectionable of all limitations, however, are those making the clause applicable only in case of accidental injuries. The table of causes will show that 44 out of 1,000 cases, or 4.4 per cent of all disability, is due to accidental injury. The company, therefore, which grants benefits for disability due to accidents issues a clause which covers 4.4 per cent of the risk the policyholder incurs. Three companies issue clauses covering disability from accident or bodily injury only. Another has limited its clause to an even greater extent by making it apply only in case of physical disability due to loss of limb, total blindness or total paralysis. But the worst of these limitations is the following: "Injury through external, violent and accidental means *resulting in the severance of both hands, both feet, one hand and one foot, total loss of sight or one eye and one limb.*" In other words, not even *injury* will be compensated if it does not result in one of some half-dozen enumerated kinds of disability. These narrow restrictions are in no way compensated for by paying the full face value of the policy upon the occurrence of such disability, as is provided for by the three companies in question. One company grants the same benefit but introduces a further restriction by the requirement that such disability must occur *within 90 days of the accident.* Two clauses cover disability as thus defined but include, as well, "disability by bodily injury," being thus of slightly broader application. These clauses cannot be condemned in too scathing terms. No insurance commissioner should let the policyholders in his state suffer the imposition which the issue of such contracts implies; and a campaign of publicity should place them in such light before prospective policyholders that they will either be changed or be entirely done away with.

CHAPTER VI

Age and Time Limits to the Application of the Clause

The most carefully written clauses state the time when they come into operation, the circumstances under which they remain in force and the time when they cease to be effective, if at all. In the majority of cases these features are covered by the phraseology used in one of the two following instances: (1) "If the insured, while less than sixty years of age, after the first premium has been paid to the company on account of this policy, shall furnish due proof to the company while the policy is in full force and effect," that he is disabled; or (2) "If after one full annual premium shall have been paid under the above-mentioned policy before default in the payment of any subsequent premium, the insured shall, before attaining the age of sixty years, furnish proof of disability."

Beginning of the Risk

The three parts to each of these clauses, as stated above, are: First, a provision that it begins to operate only after the first premium has been paid; second, that it continues in force only so long as there is no default in the payment of a subsequent or renewal premium; and third, that it ceases to be effective in all cases after the insured has attained the age of sixty years. These three provisions form a part of sixty-one of the clauses studied. A number of clauses are different in detail only. Nine companies, for instance, require a preliminary period of one year, or the payment of two annual premiums on the policy, before the clause becomes effective, and in two cases three full annual premiums must be paid. These precautions may have been taken against a supposed moral hazard. At any rate they are not of an importance which requires that emphasis be given to them. Sixteen companies go no further than to state that the clause is maintained in full effect "while the policy is in force" and ten others make no specification at all with reference to the beginning of the risk.

Default in Premiums

The second feature referred to in connection with the parts of clauses here reproduced gains its importance from the fact that a default in premium payments, while it does not necessarily terminate the regular death or endowment benefits of the policy and in equitable contracts never does, may yet render the disability contract void. For, literally taken, it provides that the disability protection ceases the moment a default occurs in the payment of premiums. It is probable that most companies, with their known liberality in interpreting insurance contracts, would, upon the payment of defaulted premiums, consider the disability insurance to be again valid, and yet the insured wants to be certain of this. There are at least three instances in which this question of interpretation may arise and where its satisfactory solution will mean much to the insured: first, during the period of grace allowed for the payment of premiums; second, in cases where the policy allows automatic extended insurance upon default, with permission to repay the back premiums later or hold them as a lien against the policy, and to continue the insurance in force without the necessity for a new medical examination; and third, where the policy is surrendered for paid-up or extended term insurance. The latter case is of no concern of course, except where the benefit takes the form of maturity of the policy and its payment by some means to the insured, since the new policy issued after surrender or lapse is always paid-up. The question then is whether the company will allow the reinstatement of the disability protection under the same terms as the regular life insurance protection in case premiums have been defaulted and they are later paid up; or whether, in case the company permits thirty days grace in payment of premiums, or allows the reserve to be drawn upon to pay them at any time, it will consider the disability insurance in force during this time and pay benefits where disability occurs during this period in the same manner that it will hold itself liable to pay death benefits where death occurs within the same period. Ninety-six companies provide the protection in question at any time "*before* default in the payment of any subsequent or renewal premium." Strictly speaking, then, the great majority of the clauses do not give disability protection under the same policy conditions as the regular life benefits, for during or after the period of grace allowed in premium payments the disability insurance

lapses. Twenty-one companies state, more liberally, that the clause operates "while the policy is in full force and effect" or "during the continuance of the policy."

Cancellation by the Insured and by the Company

Closely associated with the matter of default in payment of premiums is a provision found in a number of contracts whereby the disability clause is automatically cancelled upon failure to pay the extra premium required for this benefit. Cancellation may be effected automatically in this way or by contractual agreement to allow the insured to discontinue the disability insurance at will. Cancellation in the latter sense does not arise of course, except where an extra premium has been charged for the disability protection; and the regular cancellation provision offers no difficulties in the majority of cases, merely permitting the insured, when he desires to discontinue his disability insurance, to have his premium reduced by the amount paid for the extra benefit. There are two companies, however, that give this privilege to the company as well as to the insured. One allows the clause to be cancelled by the insured *or by the company* "provided the insured is engaged in a more hazardous occupation than at the time of its (the policy's) issuance." The other states that "within the period of grace following any anniversary of this contract, the total disability benefit may be cancelled by either the insured *or the company*." Clearly, clauses of this nature are a travesty upon life insurance, a fundamental principle of which is to grant unilateral contracts that the company must maintain for so long as the insured will pay premiums. And undoubtedly one of the reasons for placing the disability clause in life policies is to grant *permanent* disability protection to the insured over a long period and not give the company the privilege, as is done in case of accident and health policies granting this protection, of refusing to continue the insurance at the close of any policy year. In the two cases referred to it can be assumed that in later years when the probability is very great that the insured may become totally disabled, due to disease or old age, and when the company sees that the insured is approaching such a condition of total disability, the company will at once exercise its option to cancel the clause and the insured will be deprived of this protection just when he is most in need of it.

Automatic cancellation provides for the cessation of disability protection upon failure to pay the *extra* premium charged for this benefit. It operates as an added restriction upon the term of the clause and produces like results to the provision regarding default in the payment of regular premiums. Its analysis throws further light on the question whether the disability protection is to be continued during the period of grace in premium payments. In the case of three companies, it is doubtful if this provision grants the regular grace in premium payments before the disability benefit would automatically cancel itself. The rider issued by one company in connection with its term policies reads: "Failure to pay any premiums *when due* will avoid this contract." Two clauses state that "non-payment of the additional premium in accordance with the above" will render the clause null and void; and another contract provides that "this rider is issued for the term of twelve months from date and may be renewed subject to all its conditions and privileges for successive terms of twelve months *by the payment of the premium in advance.*" In one case, this requirement is indefinite but it would probably allow grace in premium payments. It states that "it will be automatically cancelled when premiums cease to be paid." In the case of six companies there is little question but the automatic cancellation feature will not apply until after the regular thirty days of grace has elapsed. For instance, "failure to pay the above premium or any premium or installment due on said policy *within the time allowed thereunder*, will render this rider null and void." One company provides in its clause that the payment of extra premiums for disability benefit is "subject in every respect to the same regulations and conditions" as the payment of regular premiums for the policy. A atitude of thirty days of grace before the clause can be cancelled is found in the case of three companies, in conjunction with the provision making the payment of the extra premiums a consideration for the contract. One clause reads, "In consideration of . . . . the payment of all premiums . . . . *in accordance with the terms*," of the policy. Another is issued "in consideration of the payment of the premium provided for in said policy *as the same becomes payable*"; the last one "in consideration of an additional . . . . premium of $ . . . . which . . . . is to be paid . . . . *subject to the same conditions as to payment as the regular premium.*" One clause leaves no doubt as

to the question under discussion by providing that the automatic cancellation shall take place upon "failure to pay the premium for this additional benefit *before the expiry of the days of grace.*"

Benefits During Premium Paying Period Only

The policies of twelve companies contain a peculiarly unjust provision limiting the benefits under the clause to the period during which premium payments are to be made. No difficulties will arise where the waiver of premiums is the only benefit granted upon the insured becoming disabled, but each of these twelve companies considers the policy matured when disability occurs and begins its payment in some form to the insured. It is as regards this "maturity" benefit that the limitation here considered becomes important. Some of these clauses have provisions as follows: (1) the installment benefit will be "null and void if any such disability occurs after the period for the payment of premiums hereon"; (2) benefits are "applicable only during the premium paying period of this contract"; (3) benefits are payable "during the continuance of this policy *and the payment of premiums hereon*"; (4) "total disability insurance is limited *to the number of years premiums are payable.*"

Limited Time for Proof of Disability

Another objectionable provision found in several clauses requires that proof of disability shall be made within three or four months of its occurrence, all benefits otherwise lapsing. This limitation usually takes the following form:

> Immediately after the commencement of the total disability, full particulars thereof must be given in writing to the company at its home office together with the address and whereabouts of the insured; and within 120 days[35] after the commencement of the permanent total disability, there must be given satisfactory proof of permanent and total disability.
>
> No suit on account of alleged permanent total disability shall be maintainable if commenced before the expiration of one year or after the expiration of two years from the date of the happening of the disability.

This feature is found, substantially as quoted, in the clauses of ten companies. Not all these companies include the limitation that suit cannot be brought at all after the expiration of two years. In its complete form this clause compels the insured to furnish proof

[35] In some cases 90 days.

of disability within the narrow limits of a few months upon pain of forfeiting all benefits, and further restrains him from bringing legal proceedings to obtain his rights under the policy except within a period of one year following a probationary period of 12 months. Disregarding the somewhat unimportant differences in detail between the clause quoted and those of the different companies in question the fact remains that in one and all they agree in placing limitations upon the benefits received merely because of failure to comply with technical requirements as to making proof; and these may happen in plenty of cases where there is no question as to the bona-fide character of the disability. The companies using this clause must face plainly the fact that they are refusing the benefit under circumstances where there is no questioning the validity of the disability.

The consideration of the first two of the three limitations stated as affecting the application of the disability clause, viz., the time when it comes into operation and the circumstances under which it remains in force has led to an extended discussion of four ways in which the general application of the clause is restricted. They are: (1) the avoidance of the clause by default in premium payments; (2) avoidance by cancellation by the company or automatically through failure to pay the extra premium for the disability benefit; (3) the limitation of benefits to the period during which premiums are payable; and (4) a limitation of the time within which proof of disability will be accepted. If the objections found to these restrictions can be accepted as reasonable then the conclusion follows that the companies issuing such clauses are not acting with the same degree of liberality in connection with the disability clause as they grant in connection with the regular death and endowment benefits under the same policies; and they are following a more conservative course than circumstances justify.

Age Limits

The final limitation placed by most companies upon the use of this clause is one which eliminates its benefits after a certain age has been reached. It has been shown that a broadly worded disability clause covers disability in case of accident or disease. Information is lacking to determine the amount of disability which in the later years of life may be due to disease or to a general weaken-

ing of the vital system. It has been thought advisable therefore by many companies to place an age limit beyond which, if disability occurs, the benefits under the clause will not be allowed. In the actuarial studies, heretofore referred to, disability premiums have been calculated on the assumption that the benefits shall cease in case disability does not occur prior to age sixty or approximately that age. From the standpoint of the insured this limitation may be unfortunate. The man who is looking for disability insurance wants to be protected throughout the entire period of his life. The company, however, can hardly be blamed in view of the present status of our actuarial information, for placing a limitation upon the use of the clause after age sixty. From another viewpoint there is adequate reason for the termination of disability benefits after age sixty. The clause stands as a guarantee that the permanence of a man's insurance will not be endangered by his becoming disabled. But the "insurance" period of life is the period of productivity and that ordinarily does not extend beyond sixty or sixty-five years of age. In other words, by that time the average man retires from active business or professional life and his later years are, or should be, cared for by the accumulations previously made. There is no especial reason, therefore, why disability insurance should cover this later period.

Ninety-four companies out of the one hundred and twenty-seven studied have placed this limit at age sixty. A few instances exist where age sixty-five has been chosen and a few have fixed upon fifty-five. The later age is objectionable and, it is believed, unnecessary, for the actuarial information at hand is sufficient to justify the extension of the limit to age sixty at least, without undue risk. Twenty clauses apply without limit of age, and one extends to age eighty, which is the same for all practical purposes. The latter, the clause of the Fidelity Mutual, matures the policy to which it is attached as an endowment at age eighty. This is an especially worthy feature of this contract and could well be copied by other companies.

Benefits After Age Sixty

Not all companies which limit the use of the clause to some age, as sixty, have left the insured altogether without protection after that time. A number of them have provided an excellent modification

whereby the premiums will be al owed to accumulate as a lien against the face value of the policy *without interest.* In this contingency the contract usually states that loan and surrender values will increase in the same way as though the insured were paying premiums. This in effect charges the lien the same as any indebtedness against the policy except as to the payment of interest on the lien. The New York Life Insurance Company does not permit the premiums to be accumulated as a lien against the policy after age sixty, but instead stipulates that they shall operate to reduce the amount of insurance in force. This provision is more liberal to the insured than the others as is shown by the effect it produces upon loan and surrender values. Under the New York Life method of treating premium indebtedness after age sixty, loan and surrender values are reduced, while the clauses previously enumerated allow these values to increase as before. The contrast in these two methods is shown in case a policy is lapsed after age sixty and its surrender value taken. With the New York Life the premiums paid are deducted from the face value of the policy and the surrender value of this reduced amount of insurance taken. With the other clauses, the surrender value of the original sum insured is taken and from this amount is deducted the premium indebtedness. To put the same statement concretely, assume two policies of $1,000 face value each, one in the New York Life and one in a company which does not grant the New York Life provision; and assume that each is surrendered after $100 has been accumulated as a premium lien against it. If the reserve on each policy at the time of lapse is $200, according to the New York Life clause the $100 indebtedness will be deducted from the face value of the policy leaving a policy with a face value of $900, the surrender value of which would be nine-tenths of $200 or $180. In the case of the other policy, the surrender value of the $1,000 policy would be taken, namely $200, and from that would be deducted the $100 indebtedness, the insured receiving $100 in cash in full settlement of the company's liability. In this respect the New York clause is unique and is much more liberal than that of any other company.

CHAPTER VII

Benefits Granted by the Disability Clause—Kind and Amount of Benefits

Kinds of Benefits

Two types of benefits are given by these clauses, the first one allowing the payment of the premium to be waived without in any way affecting the values granted by the insurance contract. Its main purpose is to enable the insured to keep his insurance in force at a time when his income has been cut off by his inability to follow further the duties of his occupation or profession. The lapsing of his policy at this time might work tremendous hardship and even injustice on the insured. The disability clause circumvents the difficulty by providing, in effect, that the company will pay his premiums for the insured. Most of the actuarial studies of disability have been made with this benefit in mind. The other possibility that is presented is to consider the policy matured and allow its payment in some form to the disabled policyholder. There are undoubtedly many cases of disability where the purposes of insurance to the holder of the contract would be better served by immediate payment of the policy than by merely considering the premiums paid up and allowing its maturity in the regular way at death or as an endowment. Both these types of benefits have been granted by the companies insuring against disability in the United States; in some cases giving one, in some the other, as an exclusive benefit, and in a number of instances granting a choice between the two. Where the policy matures upon disability it is usually paid in one of three forms: in installments, in a single cash sum or as an annuity.

Waiver of Premiums

The waiver of premiums is the benefit upon which attention was first fixed in the United States. To it the actuaries have largely confined their studies; and probably as a result this form of benefit has found most favor among the companies making use of the clause. Sixty-six companies, or approximately one-half the

total number, make the waiver of premium the exclusive benefit; while thirty-five more grant it in combination with other options. The most cursory examination of the clause historically shows that many companies have issued it at first with the waiver of premium benefit alone included and shortly thereafter have revised their clauses so as to make them payable in installments. It is perfectly proper for the companies to act with due care in extending their liability in case of disability and yet it is easily demonstrable that the liability is not increased to unwarrantable proportions by the inclusion of the maturity benefit. The company's risk in case the waiver of premium is allowed is measured by the number of premiums which would have to be paid between the time of disability and the time of death. This period has been found by Mr. Pipe[26] to be on the average one year, four months and twenty-eight days among fraternal society risks. An average of two premiums would thus be paid by the company before the policy would regularly mature by death of the insured. If now the full face value of the policy were paid upon disability the added risk of the company would be only the difference between $1,000 due now and the value now (present value) of $1,000 due in one year, four months and twenty-eight days. Discount the accuracy of Mr. Pipe's figures as much as you will and the comparison still has not furnished great objection to the granting of a maturity benefit. For if the correct average interval of time between disability and death should chance to be even four or five years in the experience of the old line companies still the liability of the company will be increased only by the difference between $1,000 and its discounted value for these four or five years. The realization of this situation by the companies concerned partly accounts for the rapid extension of the privilege of installment benefits under the disability clause. Closely allied with this is the important fact that the waiver of premiums does not in most cases meet the difficulty facing a disabled man who has no income with which to continue his insurance, or to take care of himself while in this disabled condition. It is not true that there is no place for the waiver of premium benefit in disability insurance. There are many policyholders who need protection only against the possible lapse of their insurance. But why should it not be possible

[26] *Transactions Actuarial Society of America*, Oct. 1909, p. 179.

for a company to grant either benefit, in the same clause or in separate clauses, and then give the insured the privilege of choosing the one best suited to his needs?

Maturity of the Policy

The maturity benefit for disability takes one of three forms: (1) an installment benefit, paying the policy value in ten or twenty payments, or as a continuous installment, that is, a certain number of payments guaranteed with the promise of continuing them, after the number guaranteed have been paid, for so long thereafter as the beneficiary may live; (2) a few companies pay a single cash sum in settlement of all liability under the policy and (3) a few grant a life annuity to the disabled person.

Amount of this Benefit

The amount or the value which this maturity benefit may represent has already been referred to briefly on page 40. If a man will in the average case become a death claim within the short space of one and one-half years after disability has resulted, the company must hold on his policy at the time of disability a reserve based on the probability of his dying in one and one-half years; or, in approximately the same terms, an amount which with interest added for this period between disability and death will equal $1,000. So upon the occurrence of disability the reserve value of the policy should be very nearly as much as the face value considering the short time the policyholder still has to live. The person who gets the waiver of premium benefit gets exactly this value and any settlement of the contract for a smaller amount of money is not doing justice to the insured. It is to be regretted that none of the actuaries who have made studies of disability has furnished tables comparing the full reserve on a disabled life with the regular American Experience Table reserves in such a way as to make the comparisons suggested in this discussion.

Payment of Policy in Twenty Installments

In the usual type of installment benefit, provision is made for the payment of the face value of the policy in twenty equal annual installments. The present value of these installments of $50 each,

computing interest at a rate of 3½ per cent, is equal to $736. Such clauses then require the insured to give up for $736 a policy which would within a short time mature by death for full $1,000. Opponents of the disability clause have not sufficiently emphasized this feature, by means of which the company, upon the pretext of granting a benefit, is actually reducing its liability to the policyholder. The payment of the full face value $1,000 or its equivalent is the thing upon which the insured must ultimately insist. This will make the risk for the company equal to the difference between $1,000 and the present value of $1,000 computed according to the probability of death among disabled persons. That this will cost the company more than the ordinary twenty-installment benefit as now given is apparent and it must in fairness be assumed that the insured will be charged more for the greater benefit. And yet there is no reason to doubt that the insured will be ready to pay the higher premium when it is explained that he is getting a contract which gives him all he deserves and no less. Only one company among those granting the twenty-installment benefit has yet attempted thus to treat the insured and that but recently. On October 1, 1913, the Travelers Insurance Company put into operation a new twenty-installment benefit disability contract which pays the equivalent of the full $1,000 policy. This new clause promises upon disability twenty installments of $68 each and the commuted value of these payments on a 3½ per cent interest basis is equal to $1,000.

Payment of Policy in Ten Installments

The ten-installment contracts offer much the same peculiarities as the ones just discussed. One company pays one-tenth of 85 per cent of the face value of the policy. These payments have a present worth of approximately $736 and the intention was undoubtedly to make the benefit identical in value with the twenty-installment policy. The remaining contracts of this class agree to pay the *face value* in ten equal payments. This is equivalent to $861 cash. The majority of the ten-payment contracts are therefore more liberal than any others yet discussed with the exception of the Travelers' clause. Several companies have reduced their liability from that here stated, in the case of both ten and twenty payments, by the unfair and unnecessary requirement that the annual premium shall in each case be deducted from the installment to be paid.

Payment of Policy as a Continuous Installment

Continuous installment provisions are found in the contracts of but eight companies. In three instances the payments are made equal to one-twentieth of the face of the policy, to continue for twenty payments certain, and a life annuity thereafter. The "certain" element of this benefit has been shown previously to equal a cash payment of $736 at 3½ per cent interest. That the life annuity element when added does not materially increase the cost of the benefit to the company is clearly indicated by reference to Mr. Pipe's figures of the average duration of disability before death occurs. The chance that a disabled person will live throughout the payment of the twenty installments is very small. There are a few cases, such as insanity and deafness, where the annuity feature of this benefit will be of immense importance to the individual, and it is because such cases exist that it would be desirable to add the "continuous" element to all ten- or twenty-installment benefits. Two companies allow the insured three different continuous installment options, namely the face of the policy in twenty payments certain; 93 per cent of the face value in fifteen payments certain; or 85 per cent of the face value in ten certain installments. The cash values of these three options, so far as concerns the "certain" element are, reckoning interest at 3½ per cent, respectively $736, $739 and $732. It is apparently the intention of the two companies concerned to put the three options on an equivalent money basis; but the cost of the annuity element in the three cases will be different, for the probability is much greater that the insured will live to collect his annuity after ten years than that he will receive anything on it beyond twenty years; and, furthermore, after the ten certain payments he receives $85 each year as compared with only $50 in case of the twenty certain payments. The policyholder who realizes this difference will invariably choose the ten installments and annuity thereafter. Two companies make the amount of each of the twenty guaranteed payments equal to one-twentieth of two-thirds of the amount of insurance. The cash value of this sum is $491; and the effect of such a provision is that the insured surrenders for $491 a contract which in the average case will mature in less than one and one-half years for $1,000. Such a benefit will be accepted by few persons other than those who are in dire need of funds after

disability has occurred. One other clause is the same in principle as this $491 contract, differing only in the fact that payments are made monthly instead of annually.

Cash Payment

The settlement of a disability contract by payment of a single sum of money furnishes opportunity for direct comparison between actual values given by the various companies and the amounts which may be justly expected. Five companies have promised that in case proof of disability is accepted by the company, *the full amount insured* shall be due and payable to the policyholder. This taken in connection with the facts that two of these companies charge no extra premium for the clause and two charge a flat rate of only 50 cents per $1,000 insured, and that only one of the five companies places any age limit upon the use of the clause, makes it appear that these companies have granted a most liberal benefit indeed; because this cash value of $1,000 must be compared with $736 received in case of the twenty-installment payment or $861 in case of ten installments. The significance of this liberality is, however, lost when the conditions under which the benefit is granted are further examined. These contracts pay the full amount insured but pay only in case disability is due to accident and then only where the accident has resulted in the loss of both hands, both feet, both eyes, etc., *i.e.*, there are only a few specified kinds of injury which will mature the policy; and it must be remembered that all accidental injuries comprehend but 4.4 per cent[27] of the total cases of disability. One company adds a further restriction in the requirement that the injury specified must have been sustained "while riding as a passenger in or upon a regularly licensed elevator or upon a public passenger conveyance provided by a common carrier for regular transportation of passengers." Such a contract as this should not be allowed to parade as disability insurance. One company only among the five under consideration defines disability broadly enough to include all cases of accident. Under the restrictions here enumerated the payment of a benefit equal to the face value of the policy cannot be commended and these contracts are among the most unfair and illusory of all the clauses

[27] See page 49.

granted by the one-hundred and twenty-seven companies here studied.

Five companies promise the payment of one-half the face value of the policy in full settlement of the claim upon acceptance of proof of disability. The statement itself is sufficient to show the injustice of thus confiscating the greater part of a policy which will soon mature by death for its full face value. Furthermore the disability benefit will never be used in case the reserve on the policy is greater than one-half the sum insured, since the cash surrender value can be obtained under the regular non-forfeiture provisions. The extension of this benefit throughout the life of the policy without any limitation as to the age of the insured, as is done by three of the five companies, is likewise of no significance since the worth of the benefit ceases as soon as the reserve, based on the American Experience table of mortality, is above $500. The following table, showing reserves at specified ages computed upon the American Experience mortality basis with a 3½ per cent interest rate, clearly demonstrates how an automatic age limit is thus fixed:

RESERVES ON AN ORDINARY LIFE POLICY

Attained age of insured	Age when policy was issued				
	20	30	40	50	60
50	312.60	258.64	166.89		
60	478.23	437.28	367.63	240.96	
62	512.67	474.42	409.37	291.05	66.00
64		511.41	450.93	340.95	131.73
67			512.23	414.52	228.66
70				485.23	321.81
71				507.91	351.70
77					519.24

The operation of the reserves, therefore, upon policies issued at ages 20, 30, 40, 50 and 60 automatically sets the age limits, beyond which the disability benefit will be of no avail, at 62, 64, 67, 71 and 77 years respectively. This fact makes unnecessary the provision in one clause that the cash value of the policy may be taken if greater than one-half the sum insured. One company allows a cash

payment after disability equal to the full reserve on a paid-up policy. This reserve equals the net single premium which would purchase the policy computed on the American Experience Table rate of mortality and 3 per cent interest basis. This method would be correct in theory, were the rate of mortality among disabled lives used in computing the reserve instead of the rate among *active* lives; but as it stands it is not as liberal as the provision for payment of one-half the sum insured since in all cases under the ages 62, 64, 67, 71 and 77, in the policies here referred to, the reserve is below $500. Obviously above these ages the two contracts are on a par. When the reserve on a paid-up policy shall be granted, as computed on a rate of mortality among disabled lives, then, and only then, will the insured obtain a benefit of a financial value equivalent to the waiver of premium benefit so generally available.

Payment of an Annuity

Seven companies only have seen fit to pay disability benefits in the form of an annuity. In the analysis of this annuity two important considerations are presented: (1) the kind of payment, and (2) its amount. One clause guarantees that ten payments will be made regardless of the death of the annuitant previous to their completion, and the annuity will be continued after the ten-year period for only so long as he lives, a table in the policy stating the yearly amount. The other companies, with a single exception, provide for an ordinary life annuity payable during the life of the disabled person; the exception noted granting a five-year term annuity, *i. e.*, payments limited to five in any case and to less than five in event of the prior death of the annuitant. Were there any possible justification for this clause it fails in face of the stipulation that *recovery or the death of the insured before the completion of five payments will terminate the liability of the company.* The five annual installments, were their payment guaranteed, have a cash value of only $467 and this is accepted in lieu of all other benefits under the policy. $467 is, therefore, the maximum amount recoverable under this annuity contract and there is great probability that the insured will die or recover before the five payments have been made and that the actual amount received will be much less. The following table is arranged to make easy a comparison of the amount of the annuity paid by each of these companies:

Age	1	2	3	4	5	6	7	Equitable rates (males)
	10 p'm'ts guarant'd	Straight life ann.	Straight life ann.	Straight life ann.	Straight life ann.	Straight life ann.	5 yr. term ann.	Straight life ann.
25....	$36.00	$49.04	$63.00	—	$50.00	$10 per mo.	$100	$44.55
30....	38.00	51.62	68.00	—	50.00	10 " "	100	46.97
40....	43.00	59.30	77.00	—	50.00	10 " "	100	53.97
50....	51.00	72.72	94.00	—	50.00	10 " "	100	65.72
60....	63.00	97.44	118.00	—	50.00	10 " "	100	86.37
70....	76.00	145.64	——	—	50.00	10 " "	100	124.82
80....	83.00	243.02	——	—	50.00	10 " "	100	182.88

The annuity rates of the Equitable Life Assurance Society are included in this table to furnish a basis for comparison of the annuity granted after disability by these seven companies with the annuity given to a person not disabled. The significance of the comparison lies in the apparent fact that the mortality table on which the disability annuities were computed is the same as that used for computing rates upon annuitants who are not disabled. The statement has been repeatedly made that the rate of mortality among disabled persons is much greater than among active lives. Its truth is demonstrated by the following table taken from Mr. Mead's study of mortality among disabled lives,[28] showing the present value of a payment of $1 continued throughout the life of the individual, as computed according to different rates of mortality:

INVALIDITY VALUES AT 3½ PER CENT INTEREST

Age	British Friendly Societies	Foresters (Pipe) "select" mortality	Foresters (Pipe) "ultimate" mortality	Maccabees (Mead)	Combined Fraternal Experience (Mead)	American Experience Table of Mortality
20.....	$4.57	$4.24	$2.89	$2.99	$6.39	$21.14
30.....	7.07	6.78	4.73	5.74	8.00	19.61
40.....	8.43	6.83	5.02	6.32	7.38	17.45
50.....	8.52	6.29	4.92	6.39	6.74	14.53
60.....	7.99	5.56	4.80	6.31	6.32	11.03
70.....	6.57	4.93	5.00	5.97	6.04	7.48
80.....	4.03	——	——	4.44	4.44	4.44

[28] *Transactions of the Actuarial Society of America*, 12:83.

The annuity values, *i.e.*, the present values of $1 paid annually during life, are very much smaller in the first five columns than in the last, which considers the rate of mortality among active lives; and for all ages until 80, at which time the rate of mortality among disabled risks is generally assumed to be the same as the American Experience rate. The cause for the great discrepancy between the American Experience rates and those in the first five columns is, of course, that disabled persons do not live as long as those not disabled and therefore not as many annual payments are made. The injustice, therefore, of computing invalidity annuity payments on American Experience rates of mortality or of granting annuity benefits that are no more liberal or scarcely more so than payments so computed is apparent. Not an exception exists to this serious charge against the annuity benefits granted under the disability clause.

CHAPTER VIII

Benefits (*cont.*)—Effect of Indebtedness, Death or Recovery on the Policy

The presentation of the facts regarding the kind of benefits granted under the disability contract and the amount of value obtained in each case does not enable one to predict the final results that may obtain from the existence of this clause in a life insurance policy. There are four circumstances under which one or more of the benefits here described may be greatly modified. The existence of indebtedness on a policy which is payable in installments after disability may considerably affect the amount of these installments; the death of the insured before the completion of installment payments raises the question whether they will be continued and what settlement will be made in case they are not; the recovery of the insured from his supposedly permanent disability necessitates a similar decision with respect to the reinstatement of the policy and the premiums to be paid thereafter; and finally there remains the significant question, affecting the disability clause in participating contracts, whether the insured is to receive or to forfeit his dividends after disability has occurred.

Indebtedness Deducted from Face Value or from Commuted Value

When a policy is encumbered with liens at the time of disability of the insured it is important to know how this indebtedess will affect the amount of the installments to be received. The majority of clauses provide that it shall be deducted from the face value of the policy and one-twentieth or one-tenth, as the case may be, of this reduced amount be paid in each installment. By this method of treatment the liens against the policy are at once wiped out. In effect the policy becomes matured for its face value; and the company then deducts charges against it and begins payment of the remainder in installments. Five companies have followed a plan of reducing the amount of each installment in the proportion which the indebtedness bears to three-fourths of the sum insured. The effect of this scheme is to penalize the insured for having borrowed

on his policy by reducing his disability benefit. To illustrate: in case a policy has a lien of $250 standing against it, by this method each installment will be reduced in the proportion which $250 bears to $750, or one-third making each of the twenty installments equal to $33.33. By the more usual method, as first stated, each payment would be reduced in the proportion which $250 bears to $1,000, or one-fourth; in this case the insured would receive annually upon his $1,000 policy $37.50 as compared with $33.33 in the previous instance. This method of treatment is justified by the explanation that the insured is promised, not the face value of the policy, but only the commuted value of the face amount paid in installments and it is further explained that the policy is thus immediately cleared of its indebtedness instead of letting the latter be spread over the life of the twenty payments. It will be recalled (page 64) that serious objection was found to the maturity of a policy for the commuted value only of the sum insured paid in installments; and this penalty but adds one more charge against such clauses. If, as was earlier intimated, the development of the disability clause lies in the direction of granting as large an installment benefit as can be purchased by the face value of the policy at the time of disability, then this method of penalizing policy loans will have no reason for further continuing. The companies adopting this practice contend that there is theoretic justification for charging indebtedness in this way against the cash value of the policy, since on the maturity of the insurance the loans must be paid before any further benefit can be obtained. Just as good reasons can be advanced however for considering that the policy is not fully matured until it becomes a death or an endowment claim. In this case the charging of indebtedness according to the above method is equivalent to requiring that the loans must be paid at once in order that the insured may obtain any benefit for disability. Loans, when granted, are made payable at a fixed time or at the option of the borrower; but here a new scheme is introduced by which the company requires the immediate payment of the loan as a prerequisite to the receipt of disability benefits.

Reduction of Number of Installments

A few companies have arranged the disposal of indebtedness against the insurance in such a way as not to interfere with dis-

ability benefits, by deducting any loans from the face value of the policy while at the same time making the installments paid for disability equal to one-tenth or one-twentieth of the sum insured. The effect of this is to reduce the number of installments that will be paid and the loan does not affect the disability benefits until the policy value has been completely exhausted. There is a further result from the fact that the indebtedness now continues to stand as a lien against the policy, and since liens are secured by the reserve on a policy, the reduction of the amount of insurance in force by payment of installments will gradually reduce the reserve on the policy until it is below the amount of the lien. The New York Life clause is the only one which has attempted to care for this contingency. It provides that, whenever any installment becomes payable and there is an indebtedness on the policy in excess of the cash surrender value of the reduced amount of insurance, the company shall apply such part of the installment as may be necessary to reduce the indebtedness to the amount secured by the cash surrender value. The operation of this provision can best be shown by a simple illustration. Suppose an ordinary life policy is issued at age 30, the insured becoming disabled at age 50 and the New York Life beginning payment of his $1,000 policy in annual sums of $100 and suppose an indebtedness of $200 stands against the policy. The annual payments reduce the insurance in force each year by $100 and the following table shows the application of indebtedness under this agreement:

Attained age	Payments made to policyholders	Insurance in force	Reserve per $1,000 insurance Am. Ex. 3%	Reserve on insurance in force	Indebtedness against policy
50.....		$1000	$276	$276	$200
51.....	$100	900	293	264	200
52.....	100	800	311	249	200
53.....	100	700	329	230	200
54.....	100	600	347	208	200
55.....	100	500	365	183	200
56.....	100	400	383	153	200

By the time the fifth annual payment is made to the insured the reserve on the insurance then in force is reduced to $183 and the debt against the policy is $200. By the terms of the agreement $17

would be taken from the fifth yearly installment and applied in reduction of the lien to $183. The debt now stands at the exact amount of reserve on the policy but this does not cancel the contract; for, in case the policy matures by death before the next payment is due, its value to the beneficiary will be $1,000 less the five payments made and the indebtedness of $183.

Two cases exist where the insurance company requires all indebtedness to be paid up before the installments begin. It is probable that the lien would be reduced annually by the amount of the payment until it was finally extinguished. This plan is unwise for, if the insured has any reason for choosing installment payments after disability, it is because he will have urgent need for his insurance money *at once*. One company apparently seeks to evade payment of disability benefits entirely where indebtedness exists against the policy since it agrees to pay them "if there be no indebtedness."

No Provision for Indebtedness

In a considerable number of clauses no reference has been made to this important subject and its omission is one which may result in grave consequences to some of the parties concerned. The difficulty of dealing properly with policy loans after disability is apparent after the numerous methods are considered by which the companies attempt to cope with the problem, and the necessity, likewise, of having to face the problem grows greater with the continued extension of their loan privileges by companies, as a result of competition or legislative enactment. The growth of loans on insurance policies since 1906 has been one of the most startling of recent developments in life insurance.

Effect of Death

The death of the insured before the policy has been completely paid to him in installments raises the question whether the payments will continue as before and, in case they are not continued, the kind of settlement that will be made. The majority of the clauses that deal at all with this situation assume that a policy once matured by disability is not affected by death and continue to pay annual sums until the promised number are completed. Four companies grant a further option to the beneficiary of receiving the

commuted value of the remaining installments, commuted at 3½ per cent interest. One company *requires* that the computed value be taken and discounts the future payments at 6 per cent, instead of 3½. This is unnecessary, and it only adds one more charge against a particular clause which has very little to commend it to the insuring public. Since the companies have penalized the insured by making him take a smaller cash value upon disability than at death merely in order to obtain insurance benefits at once, they should now, to be consistent, grant his beneficiary the privilege, at death, of reinstating the policy and removing the penalty. A number of companies have done this by the excellent provision in their clauses that the unpaid balance of the face of the policy will be immediately available at the death of the insured—the insurance in force at any time is equal to the amount of the policy less any payments that have been made. One company charges interest on installments paid in case the policy is so matured by death; in this instance a rate of 5 per cent. This company may well be classed with the one above which commutes the remaining installments at 6 per cent.

Effect of Recovery

The disability clause proposes to pay benefits only in case the insured has become *totally and permanently* incapacitated and the more carefully framed contracts provide that proof of disability may be required by the company, or state that benefits will be paid only so long as the disability remains total and permanent. There will undoubtedly be a few cases in the experience of companies dealing with this risk where supposedly permanent disablement will turn out to be temporary only and the question will then arise as to what shall be done with the benefits already paid. In case the waiver of premiums is the sole benefit there are two courses which the company may follow: the insured may be required to resume the payment of premiums from the date of recovery with no penalty attached because the disability did not happen to be permanent, or the premiums paid by the company can be charged as a lien against the policy. It speaks well for the liberality of insurance companies generally that the first method is the one chosen in most cases. The few cases where the second is used (and in these cases five or six per cent interest is always charged on these liens) are found in

clauses of the most undesirable kind, clauses containing many of the objectionable features already referred to. One company even goes to the extent of requiring the resumption of premium payments "if the insured shall recover *or has the ability to pay.*" Recovery from disability offers greater difficulties where the policy is being paid in installments than where the waiver of premiums is the only benefit. The better class of clauses meet the situation by a provision, to which attention was called in discussing the effects of death upon disability benefits (page 75) by the terms of which the amount of insurance in force is at all times equal to the amount of the policy less any payments that have been made.

The recovery of the insured from disability, however, brings up a question not to be met with in case of death, namely, what will be the amount of the premium to be paid on the policy henceforth? It is scarcely right, for instance, that the insured shall continue to pay the same premium in case of recovery after half the sum insured has been paid to him by the company that was paid when he still had the full face value of the policy available at death. Very few companies state specifically that premiums will be reduced after recovery proportionately to the reduction in the insurance in force but most of them provide that the payment of any benefit for disability will proportionately reduce the loan, surrender and *other* values. Possibly "other" values include premiums—there is no direct way of determining. Two companies, with a liberality which can scarcely be justified, fail to charge the installments paid before recovery as an indebtedness against the policy, and agree to pay the full face value of the policy at death. One of these companies charges no extra premium for the benefit, the other charges fifty cents per year. The liberality in one case at least is lessened by the requirement that from the amount of each installment paid during disability is to be deducted the amount of the regular premium. This far overbalances the recovery benefit, for from the regular installment of $50 paid on an ordinary life policy issued at age twenty-five there would be deducted a premium of about $20. With this very material reduction of the installment by two-fifths must be contrasted the liberal benefit in case of recovery, at the same time keeping in mind the fact that cases of recovery will be rare and that the company's liberality will not occasion it any considerable expense.

Reinstatement of Original Policy

The most objectionable of all methods of dealing with recovery from disability is found in the contracts of sixteen companies. Differing in detail, they all subscribe to the general outline of a plan the most stringent form of which is as follows: The policy may be reinstated after recovery upon (1) the insured passing a medical examination to show his insurability; (2) the repayment to the company of (*a*) all installments received; (*b*) all arrears in premiums, and (*c*) compound interest on both at five or six per cent. In some instances the insured is given an option of letting this sum stand as a lien against his policy, with interest annually, and subject to all the loan requirements of the contract—a meager substitute indeed for one of the most unnecessary and unworthy features found in one hundred and twenty-seven disability contracts.

CHAPTER IX

Payment of Dividends after Disability

The fourth and last modification of the benefits paid for disability arises in connection with the payment of dividends on participating policies. The question of dividends may arise in connection with the waiver of premium benefit or where a policy is being paid in periodic installments.

Dividends after Waiver of Premiums

Eighty-seven companies out of one hundred and one which grant the waiver of premium benefit have made no mention of dividends. Some of these companies issue only non-participating policies, hence the question of dividends cannot arise, but the greater share of them write participating insurance. An illustration will clearly demonstrate the importance of this question. In the year 1910 the Mutual Benefit Life Insurance Company paid upon an ordinary life policy issued upon a risk thirty-five years of age in 1859 an annual dividend of $20.62. The annual premium which the insured was paying was $27.50 making the net cost to the insured for the year $6.88. If the Mutual Benefit Life Insurance Company were granting the disability clause on such a risk, the question of dividends might well be of more concern to the policyholder than the disability benefit itself. It is clearly apparent that the instance given is an unusual one but it was chosen in order to bring out the extreme significance of this consideration. The greater portion of disability by far occurs at an advanced age because of disease or general age disability and there are many policies with an initial annual premium of $20 to $25 on which dividends of six, eight and ten or more dollars are paid after the policies have been in force over twenty years. Will the company then be permitted to confiscate these dividends in case the insured becomes disabled? Eighty-seven companies make no mention of dividends and the failure of their contracts to make any provision constitutes a weakness and opens the way for misunderstandings in the future.

Any other procedure than that of granting dividends to the insured during the time while premiums are waived is unfair and should not be permitted by state insurance departments. The actuaries who have computed rates for the waiver of premium benefit have based their calculations on the assumption that the initial premium charged is to be waived. And they have demonstrated that the waiver of the entire premium does not require an unusually heavy extra premium. If that initial premium contains a sufficient margin for the company's safety and the company contracts to return the overcharge in the form of a dividend, then there is no justification for any plan whereby the company confiscates the overcharge after disability occurs. Four of the thirteen companies referring to dividends in their clauses explain that dividends are to be discontinued.

Only nine companies of the total 101 permitting waiver of premiums agree to pay dividends after the insured becomes disabled. The Columbus Mutual states that the policy becomes paid up for its full amount "participating in profits"; the policy of the Reliance Life "shall participate in any distribution of surplus"; the Mississippi Valley Life policy "will be credited with dividends in like manner as if the insured paid the premiums"; the policy of the Sun Life of Montreal "shall continue to participate in profits"; the Texas Life provides that "the policy will continue in full force towards maturity *sharing in the profits of the company among policies of its class*"; the contract of the North State Life is to continue in full force as a "paid-up participating policy for its value"; the Franklin Life stipulates that "waiver of premium payments shall have the effect of providing the same values and benefits as though premiums waived had been paid"; the waiver of premiums by the Home Life of New York, "shall not affect the right of the insured to any dividend or other benefit"; the Germania Life requires that dividends after disability "shall be paid in cash." Since the rate of mortality among disabled persons is so much greater than among active lives it is not equitable to the company, or to its other policyholders, to permit the disabled person to use his dividend to purchase a paid-up addition to the policy since this paid-up addition is computed on the American Experience table rate of mortality. The requirement of the Germania Life that dividends be paid *in cash* after disability is, therefore, one which might well be copied.

Dividends after Maturity of the Policy

Dividends on a policy after its maturity will not be computed on the same basis as before since two elements which are largely instrumental in producing the surplus fund from which dividends are paid, viz., savings in expense and lower mortality than expected, are in no way affected by a policy once matured. It is not surprising therefore to find that only one company makes any reference to the payment of dividends on deferred installments, this company stating that in case the twenty-installment benefit is chosen no dividends thereafter will be paid. There is, however, a further element, and a very important one, contributing toward the fund from which dividends are derived, viz., excess interest earned on the company's assets above the rate assumed in calculating premiums. Practically all the companies today compute premium rates on a three or three and one-half per cent interest basis, while many of them earn four, four and one-half or even five per cent on their assets. If a company has earned four and one-half per cent on its assets, but has computed its rates on a three and one-half per cent basis, this extra one per cent has been contributed by the assets as a whole, and a proportionate amount of it in justice belongs to every policyholder who has a claim on the company's funds. The disabled person, whose policy has matured for $1,000 payable in twenty installments is assumed by the company to have a policy worth $736 in cash, using a three and one-half per cent interest basis in discounting the installments. If the company, however, has earned four and one-half per cent interest the policyholder has a valid claim on the extra one per cent on that part of the $736 still in the company's possession and he is being treated unfairly if the company uses that income to swell the dividends on policies not yet matured. As stated above, the practice of so using surplus interest is followed by all the companies today in connection with their disability contracts in cases where "maturity" benefits are promised. The most equitable contracts issued today pay this excess interest where policies matured as death claims or endowments are being paid to beneficiaries in installments. This practice should be required of all companies and should be extended to cover installment payments under the disability contract.

Conclusion

The foregoing study makes possible a statement of some of the factors that should govern the future development of the disability clause. It has been found that the main motive back of its rapid rise to popular favor is commercial—a constant need of the solicitor for a new feature, a "talking point," and the keen appreciation on his part that the disability clause furnishes it. It has been further shown that the risk of total and permanent disability is a real and tangible one and that its occurrence may easily endanger the permanence of one's insurance. The idea of furnishing a real insurance feature has prompted the issue of the clause in many cases. These two motives, the altruistic and the commercial, have combined in bringing into existence a multitude of clauses, some good, some worthless, and some a curious admixture of the good and the bad. The business motive has led some companies to adopt clauses for no other purpose than to meet competition and the results are a disgrace to American life insurance; while other clauses show that they have had behind them the very best of careful and thoughtful consideration of the problems involved. It is plain that we have as yet no adequate knowledge of this risk in its relation to life insurance and we must permit the companies to go slowly in making the clause all that it should be, lest they make a mistake in the direction of too great liberality. Such a false step might only destroy the progress thus far made.

Three fundamental criticisms can be brought against the majority of disability clauses now issued: (1) the definition of disability; (2) the benefit given; and (3) restrictions under which the clause is granted. One way of meeting these criticisms is to frame a clause embodying in it all those features which are desired and which the present study has found to be safe. But this plan has inherent defects. In the first place, the same circumstances do not exist with every company—one writes participating insurance, another does not, the question of dividends being important in the first instance and never arising in the second; one company charges a premium for the clause, another pays the costs out of surplus, the first having need of a cancellation clause, the second not—and so in many instances the differences in method require a corresponding difference in the provisions of the disability clause. The

desirability, therefore, of attempting to frame a clause for general use is questionable. A second objection that faces the writer is the difficulty of obtaining a clause that would meet all the legal requirements of various companies. Equally satisfactory results can be obtained by laying down certain principles that should be embodied in every contract, and leaving it to the companies themselves to frame their clauses with these principles in mind.

The three points at which the disability clause is especially open to criticism are stated in the preceding paragraph. Disability is defined by all clauses today as inability to perform the duties of *any* occupation for gain or profit. It should be defined with reference to the particular occupation in which the insured is engaged. The life insurance companies should note that it is so defined today by some companies issuing accident and health policies. Benefits should furthermore be paid for disability *due to any cause whatever* where fraud is not present. The restrictions now existing in many clauses whereby only a limited number of cases of disability are covered should be completely done away with.

In the second place the benefit given after disability should in no case be less in money value than the insured would receive could he continue his insurance in force until death; and he should have the option of choosing between a "maturity" benefit and mere waiver of premiums. If the maturity benefit is not the full equivalent of the face value of the policy it should in no case be of less value than the waiver of premium benefit—and the latter will be equal to the present value of the sum insured computed on the basis of the mortality rate existing among disabled lives. Furthermore disability benefits should always be fully participating where the main policy is participating and dividends should be paid to the insured after as well as before disability.

The third feature which every clause should embody should grant disability benefits with the same restrictions as are made in case of the regular benefits under the policy. The many restrictions now found in clauses regarding the lapse of disability benefits through default in premiums, limitations on the time for making proofs or restrictions of benefits to the premium paying period, etc., have no right to continue. These remarks, of course, do not apply to such cases as fixing an upper age limit beyond which benefits will not be allowed, ample justification for which practice has been

found. It is evident, if these criticisms can be accepted, that there is yet opportunity for the life insurance companies to issue a disability clause which is a real "selling feature" and one which will meet competition because of its intrinsic merit as an insurance measure.